THESIS

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Green Purchase: The influence of Pro-environmental Behavioral intention on Consumer green purchase decision.

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Abstract

Environmental issues are escalating. Globally, societies are becoming increasingly aware of the negative consequences of environmental degradation on human health, ecosystems, and sustainability of life on earth (Wiernik, Ones, Dilchert, & Klein, 2018). Humans are a tiny fraction of the weight of living things and have a disproportionately large impact on our environment (Williamson, Satre-Meloy, Velasco, & Green, 2018, p. 12). Environmental quality firmly contingent on human behavioural patterns. Consumers involvement in tackling with climate change through lifestyle change and their purchasing preferences are inevitable at 21st century. Consumer's awareness of green products has increased in the last few years, but studies shows that the demand for green products has been stagnant(Arli, Tan, Tjiptono, & Yang, 2018). The purpose of this study is to explore Norwegian consumer's awareness and pro-environmental attitude towards green products.

The authors conducted a quantitative study based on an online survey. The data were collected from Norwegian consumers (People living in Norway considered as a Norwegian consumers); assembled 206 valid response in total from the respondents. In order to test reliability and validity of collected data, to examine correlation between different variables, the authors used the trial version of IBM SPSS statistics 26 and trial version of Smart PLS 3 for data analysis.

It was found that the consumers pro-environmental behavioural intention had positive relationship with green purchase behaviour. Where as all the tested correlation between independent variables with dependent variable was not established.

This paper provides a comprehensive understanding about green products, consumers pro-environmental attitude, intention and behaviour. The findings of this study can be used for further academic purpose. It is even more useful for green product marketers to analyse the scope of eco-friendly products among consumers group.

Keywords - Consumer behaviour, green purchase, environmental consciousness, socially responsible consumer, pro-environmental behaviour, Norwegian consumers

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Sincerely

Prasan Ale

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Bodø, Norway

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LISTS of ABBREVIATION

AMA	The American Marketing Association
PEB	Pro-Environmental Behavior
TPB	Theory of Planned Behavior
VBN	Value Beliefs and Norm theory
TRA	Theory of Reasoned Action
PBC	Perceived Behavior Control
NB	Normative Beliefs
MC	Motivation to Comply
PEC	Perceived Environmental Effectiveness
NAT	Norms Activation Theory
NEP	New Ecological Paradigm
AC	Awareness of Consequences
AR	Ascription of Responsibility
PN	Personal Norms

CHAPTER 1: Introduction

1.1 Background of Study

The growing concern for climate change, health awareness and environmental issues has gained ground or environmentally conscious attitudes are gaining ground. Consumers are becoming more conscious and beginning to reassess the most influential factors guiding to their purchasing decisions. It appears that there is potential for improving consumer involvement in tackling climate change through lifestyle change and purchasing preferences(OECD, 2009).

Preserving environment for current and future generations is one of the greatest societal challenges of our time and one of the ways to decrease environmental impact is green purchasing. Green purchasing or environmentally preferable purchasing means the use of products and services that have a lower or reduced impact on human health and the environment. Whereas, "the green consumer has been described as an individual looking to protect themselves and their world through the power of purchasing decisions" (Bergin-Seers & Mair, 2009; Ottman, 1992). Also, the prevalence of environmental issues in the media and social environment has encouraged a large majority of consumers to develop environmental concerns, pro-environmental attitudes and an intention to purchase green products and perform green behavior (Bergin-Seers & Mair, 2009; Peattie, 2010). However, several studies have shown that pro-environmental attitudes rarely convert into actual green consumption behavior (Carrington, Neville, & Whitwell, 2010; Hooper, 2012; Young, Hwang, McDonald, & Oates, 2010). This phenomenon signifies the attitude-behavior gap. For instance, in different surveys, 30 % to 50% of consumers indicate their intention to buy green products however the market share of these goods is often less than 5% of the total sales (Terlau & Hirsch, 2015).

Consumers green purchasing decisions in everyday life can bring a greater chance to reduce this environmental impact avoiding higher-impact products replacing with environmentally friendlier. For instance, bamboo toothbrushes instead of plastic one's paper straws instead of plastic straws, it means use recycled or bio-degradable materials. It's a fact that, environmental sustainability is not a luxury, it's a necessity. The present study seeks better understanding about consumers green purchase intentions and behaviors. Since green product purchase remains limited to a niche market of green consumers (Ozcaglar-Toulouse, Shiu, & Shaw, 2006). This study helps to increase consumer awareness regarding green purchase and induce them towards environmental sustainability agenda.

Some studies have shown that although the consumers are environmentally conscious it does not always end up purchasing environmentally friendly or green product[1] (Mainieri, Barnett, Valdero, Unipan, & Oskamp, 1997). It is a global concern about environmental sustainability and climate change which has increased in the recent years. It is still unclear whether consumers' green attitudes are consistent with their purchasing behavior and what factors play major roles in the decision-making process as (Moser, 2015). In this paper we try to address the question of whether consumers who are aware of the environmental issues buy green products? We explored the Norwegian consumers intention and action and we focused on behavioral decision.

Similarly, the study by (Tan & Lau, 2011) indicates, the researchers have also reported that consumers are unlikely to engage into pro-environmental behavior if they believe that their action or effort are not making any difference in achieving a positive environmental outcome (Kim & Choi, 2003). Norway is very conscious in the sustainability agenda, in general like urbanization, digitalization, climate change and integration such key indicators are their high priority in order to meet sustainable development goals(Norwegian government, 2018).

According to the official site of (Sustainable Brand Index, 2019), 64% of Norwegian discuss sustainability with friends and family, 66 % of Norwegian consumers say that sustainability impacts their buying decisions and 28% of Norwegian consumers are willing to pay 10% more for a sustainable alternative however Norwegians are less prone to pay a price premium for a sustainable option than Sweden, Denmark and Finland (Sustainable Brand Index report, 2019).

This study is mainly concerned with the relation between intention, attitude and behavior. The highly preferred theory on the attitude behavior relation is the Theory of Planned Behavior (TPB) by (Ajzen, 1991b). According to TPB theory, attitude towards behavior, subjective norms, and perceived behavioral control together forms individual behavioral intentions and behaviors.

A lot of research has been done in relation between attitude and behavior when it comes green products, and all conclude there is a gap between what consumers think and what they do regarding making green purchases (Erve, 2013). There is always a gap between consumers intentions and their real actions. It signifies that consumer positive attitude towards green products does not always convert into action(Joshi & Rahman, 2015). Firstly, our study mainly

[1] Green products(GPs) also known as environmentally friendly products(European Commission, 2013).

focuses on consumers attitude or opinion towards green product. Secondly, the consumers attitude towards purchasing green products it means performing an action.

1.2 Problem Statement

The environment has great effect on all the living creatures. Environmental sustainability is the major growing issues at present worldwide. There is staggering pressure on global resources for instance, pollution of air and water, global warming and climate change, depletion of the ozone layer, extensive use of non-renewable and natural resources etc. In this regards, empirical evidence suggests that increasing number of consumers and new generations are motivated to buy environmentally friendly products concerning with environmental values but in the behavior, it is much less.

Similarly, there has been already some research have been done into the "Attitude-behavior gap" in green consumerism but still consumer understanding is very limited and it's a challenging phenomenon. The Norwegian sustainable development strategy partly relies on individual consumers to take responsibility, by purchasing environmentally friendly products but Norwegians are less inclined to do so than consumers in many other European countries.

Norway is embarking on a challenging process of fundamental transformation by its climate targets include reducing greenhouse gas emissions by at least 40% by 2030 and becoming a low-emission society by 2050 (Norwegian government, 2018). This report helps to explore Norwegian consumers knowledge, attitude and experience of green behaviors. The studies based on pro-environmental behavior can provide information that can be useful in minimizing the negative environmental impact of human activities.

consumers play vital role embracing sustainable practices in an agriculture, industry and trade. Also, they can exert greater influence on environmental effects of their consumption. By means of their product choices, consumers can "Vote" for more or less sustainable means of production, distribution, and trade, and influence which products appear on supermarket shelves (Tanner & Wölfing Kast, 2003).

Main research questions

How do consumers with environmental awareness buy green products?

Sub-research questions:

1. How educated and well-informed Norwegian consumers are about green products and their benefits?
2. What may keep Norwegian consumers from purchasing green products?
3. How strong is the green purchase decision concerning the increasing environmental issues for Norwegian consumers?

1.3 Research Objectives

The main objective of this study is:

- ❖ To examine the influence of pro-environmental behavioral on green purchase decision
- ❖ To study the relationship between environmental knowledge and green purchase decision.
- ❖ To analyze the relationship between environmental effect and green purchase decision

1.4 Delimitations

Due to the short time frame and limited resources, the extent of this research has been narrowed down. Although the concepts and demand for green products and environmental issues are worldwide issues. The scope of this research is limited only within the Norwegian territory. Respondents were native Norwegian consumers as well as people from outside those who are living in Norway also regarded as Norwegian consumers.

1.5 Structure of the thesis

This thesis comprises of the following chapters:

- **Introduction**
  This chapter defines the green products and green marketing concepts, introduces consumer pro-environmental behavior and builds up hypotheses of study and presents the research model of the study.
- **Theoretical Framework**
  This chapter gives the depth overview of the Planned Behavior Theory (TPB), Value Beliefs Norms theory (VBN) and get acquainted with several other previous research.

- **Methodology**

  This chapter gives details explanation about research philosophy, data collection, assimilation and analysis of methodology along with validity and reliability of this thesis.
- **Analysis and Discussion**

  Based on theoretical background and methodological framework, this chapter search for the answers of the research questions.
- **Conclusion**

This chapter provides, a brief summary of key findings, deliver answers to the research questions, presents implications during research process, and introduce foundations for further research and provide recommendation to the future research.

CHAPTER 2: Literature Review

2.1 The Green Purchase decision basic review: The Concept of Green Product, Green Marketing and Green Consumer and Pro-environmental behavioral intensions.

2.1.1 Green Product

According to European commission, the Green product or environmentally-friendly products defined as products that have a less negative impact on the environment during production, in terms of use and disposal compared to other products (with the same functionality, addressing the same need, etc.)(European Commission, 2013). Similarly, Wiley Online Library has also published several definitions from different authors regarding green product, which are interpreted in different ways. In connection to that, Green products, also named environmentally-correct or environmentally sustainable products, are those capable of adding long-term benefits, reduce client stress and relieve them from their environmental responsibility, without, however, diminishing product's satisfying qualities (Pietzsch, Ribeiro, & de Medeiros, 2017; Wiley Online Library, 2018).

Another authors defined that, the environmentally sustainable or environmental compatible or green product entails a list of potential benefits to the environment as they are made of environmental-friendly resources, have resource-conservation potential, can be recycled and have least environmental impact at all stages of its lifecycle(Biswas & Roy, 2016).

Furthermore, the meaning of green varies on the field of research; academic, industrial and consumer (Ogla Gorokhova, 2015). However, Wiley Online Library has proposed specific definition of green product which is: Green is a product (tangible or intangible) that minimizes it's environmental impact (direct and indirect) during its whole life-cycle, subject to the present technological and scientific status (Sdrolia & Zarotiadis, 2019; Wiley Online Library, 2018).

US Environmental Protection Agency (EPA) noted important points to consider human health and environmental impacts over product entire lifecycle through: source of raw materials, manufacturing, packaging, transportation, distribution, retailing, use of the product and management of the product when it is no longer needed through Reuse, Reduce & Recycle (3R)(United States Environmental Protection Agency, 2019).

Based on the literature review, it is known that the term “Green Product” also known as environmentally friendly products.

2.1.2 Green Marketing

The burning issues and widespread public concerns at this time frame is undoubtedly environmental preservations and in relation to gradually changing consumer behavior. Thus, however this has also turned out the new market for viable or sustainable products emerge and further strengthened by environmentally concern consumers and since it appeals for the, although indirectly to the safeguard of the environment (Papadopoulos, 2019).That is why the framework of marketing has been extended towards the environmental dimensions and here is induce the new concept of green marketing.

The EuroMed journal of business state about the term “Green marketing” as a process which involve the planning, development and promotion of products or services that satisfy the needs of consumers for quality, output, accessible prices and service without having any negative impact on the environment(Papadopoulos, 2019). This concepts is defined in various ways in terminology such as environmental marketing, nature friendly marketing and or eco-friendly marketing(Kirgiz, 2016, p. 20). The American marketing association (AMA) first quoted the green marketing in the book named ‘ecological marketing ‘in 1975s where they define green marketing as a two-way tool of being fulfilling the needs of consumers and to ensures minimal impact on nature.

American Marketing association (AMA) defines green marketing in three ways (R.bruer company, 2019)

- The marketing of products that are presumed to be environmentally safe.
- The development and marketing of products designed to minimize negative consequences on the physical environment.
- The efforts by organizations to produce, promote, package and reclaim products in a manner that is sensitive or responsive to ecological concerns.

Today’s consumers are well informed about the product and services they are being using and they became more selective. Therefore, they made a free choice right for the products and services by less damaging the nature at their own benefits.

2.1.3 Green Consumers

Along with the green marketing and green products the concepts of the green consumers prolonged. As with many other research field/topics, green consumerism is also worthwhile to systematically overview as an important research domains (Wilkie & Moore, 2003).While increasingly prioritizing the environmental and sustainability issue in business/marketing/academic, together with that, it is also crucial to address the sustainable or green consumerism research domain (JayPolonsky, 2017).

As defined by the economic literature green consumers are those who perfectly involved in protecting the environment by having a correct information regarding the traceability of products they own (Caprita, 2015). A variety of terms have been used to define consumers which integrating environmental issues into their buying decision(Kilbourne & Beckmann, 1998), ranging from ecological, ethical, environmentally responsible, pro-environmental, sustainable consumer etc.

According to the green consumer guide(Elkington & Hailes, 1988), green consumers are those group of people who believe in consume products that are healthy for them and others, downturn their impact on environment, animals and any other objects. A green consumer is the one who associates the act of purchasing or consuming products by being more respectful towards nature (Tamuliene, 2019).Another word for green consumer is the ecologically conscious consumer, as stated by Robert and Bacon(1997), an ecologically conscious consumers avoid the products , that they perceive harmful to the environment and guided by less sustainable production, use or final disposal, consumption of excess energy, packaging and use of substances contain ingredients from habitant.

It is known that, Berkowitz and Letterman (1968) and Anderson and Cunningham (1972) were pioneers in profiling the green consumers. While truly concerning of environmental issues and being thoughtful on that and to bring changes on consumption choices appeal differently to different consumers. The environment research organization, “Roper Stach Worldwide” (Organization & Wax, 1990) experiment on American consumers pro environmental behavior and based on that, there are five categories of consumers:

Table:1 Green Consumer Segmentation:

Green Area	Characteristics
True Blue Green	True environmentalists and take initiative to strive people towards environmental values.
Greenbacks Green	Consumers with strong sporadic sentiments towards greenness and they show their willingness to pay any price for environmentally friendly consumption.
Sprouts	Consumers with incongruence between their positive attitude and pro-environmental behavior.
Grousers	Consumers with less respectful towards environmental values.
Basics Browns	They don't consider the urgency of pro environmental behaviors to solve ongoing nature devastation.

Green consumers are subject to segmentation and it is important to single out the similarities and differences between various types of consumer and group them in a particular green segment based on their socio-demographic characterization, psychographic characterization, buying behavior, demanding, expectation and marketing mix(Afonso, 2017, p. 144).

There are many approaches to consumer segmentation studied previously and another green consumer segmentation that has been majorly referred my most of the market research consulting groups namely: Natural marketing institute (2005),Mintel, GFK Roper consulting have segregate green consumers into following five segments:

- **True green consumers:** These consumers demonstrate higher commitment to the environments and translate into their purchase decision. They proactively buy green products regularly. Different research group depicts true green consumers differently.
- **Ecologically concerned consumers:** This green consumer segment includes environmentally conscious group and their sense of responsibility towards environment thrive them to pay more for green products.
- **Moderately green consumers:** They are also environmentally concern group but when it comes to purchase decision, they are more concentrated to fulfilling their need whether from green or conventional products.

- **Occasional green consumers:** They are environmentally concern consumers segments, but they denied supporting the individual contribution to solve environmental issues by buying green products.
- **Apathetic consumers:** They are consumers segment who don't buy green and even don't care for the environment.

Hence, all the consumers are not equally favorable towards green products. Each green consumer segment insights different level of commitment towards the environment also in their purchase decision.

2.2 Theories of Consumer Pro-Environmental Behavioral intensions

This chapter explains some of more well-known behavior model to understand pro-environmental behavior (PEB). Various model has been proposed to aid understanding of PEBs or conservation behaviors (Turaga, Howarth, & Borsuk, 2010). Among all the theoretical approaches for the explanation of pro- environmental behavior at the individual level are; theory of Planned behavior (Ajzen, 1985), And theories of moral motivation: ,Value belief-norm theory ((Paul C Stern, Dietz, Abel, Guagnano, & Kalof, 1999) and Economic model are widely used framework to describe environment oriented behavior of individual.

We found that, most of the literature review in represents a powerful engine for behavior change had used Planned behavior theory (TPB) developed by Ajzen (Ajzen, 1985). The experience of applying TPB widely on PEBs shows that, this model able to explain and predict wide range of variance of antecedents of behavior. While the value-beliefs and norms are grounded in beyond self-interest and rational choice and rather focuses on personal values and morality.

In this section, we will more stick towards two of the most coherent, well accepted and empirically supported theories, Theory of Planned Behavior (TPB) and Value-Beliefs and Norms (VBN) which has been used together by many researchers to improve the degree of understanding of environment related intensions and green purchase decision along with these theories we developed our own conceptual framework

2.2.1 Theory of Planned Behavior

Numbers of studies on pro- environmental behavior choose the theory of TRA and TPB framework. Ever since the theory of Reasoned Action (TRA) or the more extended version of it known as the theory of Planned Behavior (TPB) appeared it has been most widely applied framework for consumer behavior analysis. As it is widely accepted as a deliberative processing models, with the believe that, informational and motivational influences determined individual behavioral decisions.

Ajzen and Fishbein have based their theory of Reasoned Action on the premise that;

(Ajzen & Fishbein, 1980)

"... human beings are usually quite rational and make systematic use of the information available to them. We do not subscribe to tile view that human behavior is controlled by unconscious motives or overpower desires, nor do we believe that it can be characterized as capricious or thoughtless. Rather, we argue that people consider the implications of their actions before they decide to engage or not to engage in a given behavior. For this reason, we refer to our approaches as a "theory of reasoned action".

This theory assumes that individual behavioral action is the result of two components; a) attitude towards given behavior, with this referring to one's positive evaluation or appraisal of the behavior in question, and b) perception of considering various subjective norms, with this referring to social pressure or expectation either to engage or not to engage on target behavior. That means, if persons attitude to that behavior is guided by the set of objective beliefs that a given behavior leads to certain outcomes to his/her personal and favorable perceived social beliefs from significant people around him/her comply a motivation to the individual which ultimately drive a certain behavior(Stead, 1985).

Theory of Reasoned action emphasized, behavioral action under volitional control while disregarding various situational factors behind the abandoned towards certain behavior.

To address the limitations of TRA, Ajzen (1991) proposed an extended version of it, theory of Planned behavior to improve the predictive power of individual behavior. Where he introduces additional determinants of behavior and intensions; "Perceived behavioral control (PBC)".

Perceived behavioral control denotes “people’s perception of the degree to which they are capable of, or have control over, performing a given behavior” (Fishbein & Ajzen, 2010).More accurately, PBC is the question mark on one’s perception on their knowledge, ability, affordability, availability, and so on. Which can also define as “self-efficacy”, belief on self to perform given behavior. PBC express the function of belief about resources, opportunities, and other factors that facilitate or obstruct behavioral performance(Hennessy, 2012).The inclusion of PBC leads to more fully explained behavior specially the behavior that are difficult to engage in(Dunlap, Van Liere, Mertig, & Jones, 2000).The person intensions for a result of behavioral action become more or less difficult to carry out these behaviors. Where TBP model able to explain that intensions are the functions of people perceived control.

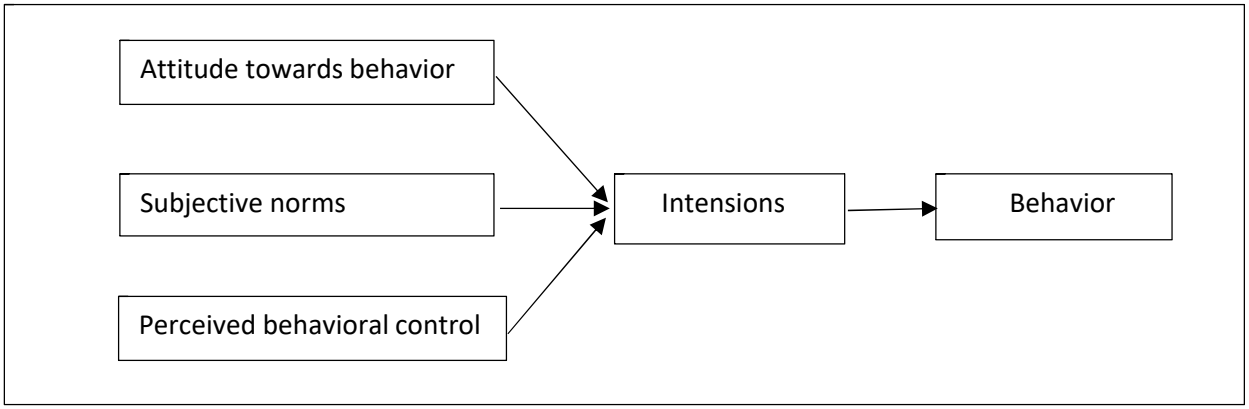

Figure 1: Theory of Planned behavior (Ajzen, 1991b, p. 182)

This model is suitable for application for PEBs and various other sector to test consumer behavior like, Green information acceptance technology(Mishra, Akman, & Mishra, 2014),Online purchase (Aldousari, Delafrooz, Ab Yajid, & Ahmed, 2016),Social and Psychological analysis(Mandy, Lucas, & Lucas, 2009), Corporate social responsibility intension issues (Chuanmin, Fangkai, Chingtorng, & Yuhsuan, 2018), Behavior towards environmental concern (Kurisu, 2015).

The TPB stated that behavioral intensions is determined by three predictors (figure 2): Individual attitudes towards the behavior must be positive, associate subjective norms and individual believe to actual control over behavior (Ajzen, 1985).

Attitude towards Pro-environmental intensions to determine Green purchase behavior

According to the (Oskamp, Dec 1996), the attitude defined as the general evaluative reactions towards an object, a person, an issues, a behavior or other entity. The attitude is the construct to the large theoretical and applied research in order to predict behavior. The attitude is also define as a represents of perceived consequences of the behavior for the person and is a function of its salient behavioral beliefs(Conner & Armitage, 1998).For example in our case, Consumers buying green products and their liability towards environment is the results of perceived consequences of the evaluation of the behavior (Ajzen & Fishbein, 1980).

In the theory of planned behavior, attitude is interpreted as " the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in questions" (Ajzen, 1991b). Therefore, attitude is the overall evaluation of behavior, whereas the relevant attitudes always perform assessment of behavior. The number of studies has been made before nineteen sixties, where the researcher concluded that the attitude as a poor predictor of behavior(Dockery & Bedeian, 1989; Wicker, 1969) but this misunderstand has ended after the development of TRA by Fishbein and Ajzen (Ajzen & Fishbein, 1980).Ajzen and Fishbein derived the formula where they stated, attitude towards certain behavior is the sum of product of beliefs and evaluation of all the outcomes that are considered by individual (Bonnes, Lee, Lee, Canter, & Stea, 2003).

Since the attitude stand as a central concept in TBP and supported by the number of studies which shown positive correlations between person attitude and pro-environmental intensions determining the green products purchase decision. According to the Harvard Business Review, 65% consumers want to buy purpose driven products that advocate sustainability(Review, 2019).Therefore, "An individual positive attitude toward certain behavior strengthens his/her intensions to perform the behavior" (Ajzen, 1991b).

H1: There is direct and positive relationship between pro-environmental attitude and pro-environmental behavioral intensions towards green purchase decision.

Subjective norms with regards to Green purchase decision

In the TPB, Subjective norm is another important essence to predict the behavioral intensions. Where subjective norm is defined as "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991b). Subjective norms is composed of two sub concepts: i) Normative beliefs(NB) and ii) Motivation to comply(MC), which explained which person or groups or

factors are responsible for the normative to pressure to perform or not to perform, a certain behavior(Mayank Jaiswal, 2003).

The subjective norm is the results of The NB which indicates the perception or thought of specific significant others to arbitrate the individual whether he/she should or should not to perform(Conner & Armitage, 1998). The 'significant others' are those referent groups who can create interpersonal influence-who might have strong opinion towards green purchase decisions strongly influenced to him/her to act in a certain way. These 'significant others' are someone important whose opinions matters to you for instance family, friends, relatives and social groups. Similarly, Motivation to comply(MC) in subjective norms is the degree to which the individual allow these referent groups to exert influences on him/her (Bonnes et al., 2003, p. 175).Overall, subjective norms is the sum of products of NB and corresponding MC.

Several research have also supporting that subjective norms as a great predictor of individual behavioral intensions towards green or environmental related products (Heesup Hana, 2010; S. P. Kalafatis, M. Pollard, R. East, & M. H. Tsogas, 1999; Ko, 2012).Thus, in our context, when someone from referent groups or significant others think buying green product is a proper behavior and one's perceived social influence to buy green product would his/her motivation to comply(S. P. Kalafatis et al., 1999).Therefore, our second hypothesis stated that:

H2: There is a direct and positive relationship between subjective norms and individual pro-environmental intensions towards green product purchase behavior.

Perceived environmental effectiveness (PEE) to determined Pro-environmental behavioral intensions

Another major determinant, which caused the establishment of another theory, as an extended version of TRA is perceived behavioral control. Our research delves into PEE, that will directly and positively influence individual pro-environmental intensions towards green purchase behavior. The original term used in theory "perceived behavioral control" that depicts the behavior as a functions of intensions (Conner & Armitage, 1998). The perceived behavioral control calibrate the level of control perceived by the person during the accomplishing of certain situation and postulate in consumers estimation of the level of hardship at the time being of execution of behavior (Self-Efficacy) (Ajzen, 1991b).When it comes to the environmental context, PEE is an individual locus of control, as such their individual beliefs to make a differences in conserving the environment(Cleveland, Kalamas, & Laroche, 2012a). Individual

control over their behavior is a twofold concept of Self-efficacy and controllability. In the scenario of green purchase decision, it stands out for the person's self-assessment of capability to go for green choices and perception of resources required to buy green products. This has led to the development of following hypothesis:

H3: There is a direct and positive relationship between consumers' perceived environmental effectiveness and their intention to behave in a pro-environmental manner.

2.2.2 Value-beliefs and norm theory (VBN)

Above all the external motivators or influencers to determine individual environmental intensions that guided to make more green choice, individuals value orientation and deeply rooted moral norms also significantly inherent for pro environmental intensions. Theory of TPB treats environmentalism from economical worldview where Paul C. Stern brought new concept of human interaction with environment. Paul C. Stern and collaborators developed the Value-beliefs norm theory of environmentalism (Paul C. Stern, 2000) is the extended theories of combination of Universal Theory of Human Values(Schwartz, 1988), Norm Activation theory(NAT)(Schwartz, 1977) and beliefs inherent in new worldview: The ecological paradigm(Dunlap et al., 2000).

In the VBN model, the theory postulates the hierarchical chain that moves from personal value orientations to beliefs structure to more focused beliefs of human-environmental interaction i.e Ecological worldview(NEP), awareness of consequences(AC), ascription of responsibility(AR), to self-beliefs to personal norms(PN) that determined the person's intensions and behavior(Paul C. Stern, 2000). Within the theory, the value orientation such as biospheric value which means value to the nature, altruistic value which implies for the welfare and wellbeing of others has positively linked to the new ecological paradigm, which is the new way of interacting with environment and more focused on holistic approach and green economy and with other variables whereas egoistic value refers to the maximization of personal benefits. According to the VBN, an altruistic behavior also called ecologically responsible behaviors depend on the activation of individual moral considerations which is weighted from values themselves(del Carmen Aguilar-Luzón, García-Martínez, Calvo-Salguero, & Salinas, 2012).

The most important element of VBN theory is, it successfully associated the values to environmentalism which is mediated by three different beliefs(Paul C. Stern, 2000) which are

: i) New economic paradigm also known as New ecological worldview (NEP) ii) The awareness of the consequences of action (AC)and iii) The Ascription of responsibility (AR). This correlation of Value orientation and personal norms (PN) revealed the pro-environmental behavioral conductors (del Carmen Aguilar-Luzón et al., 2012).

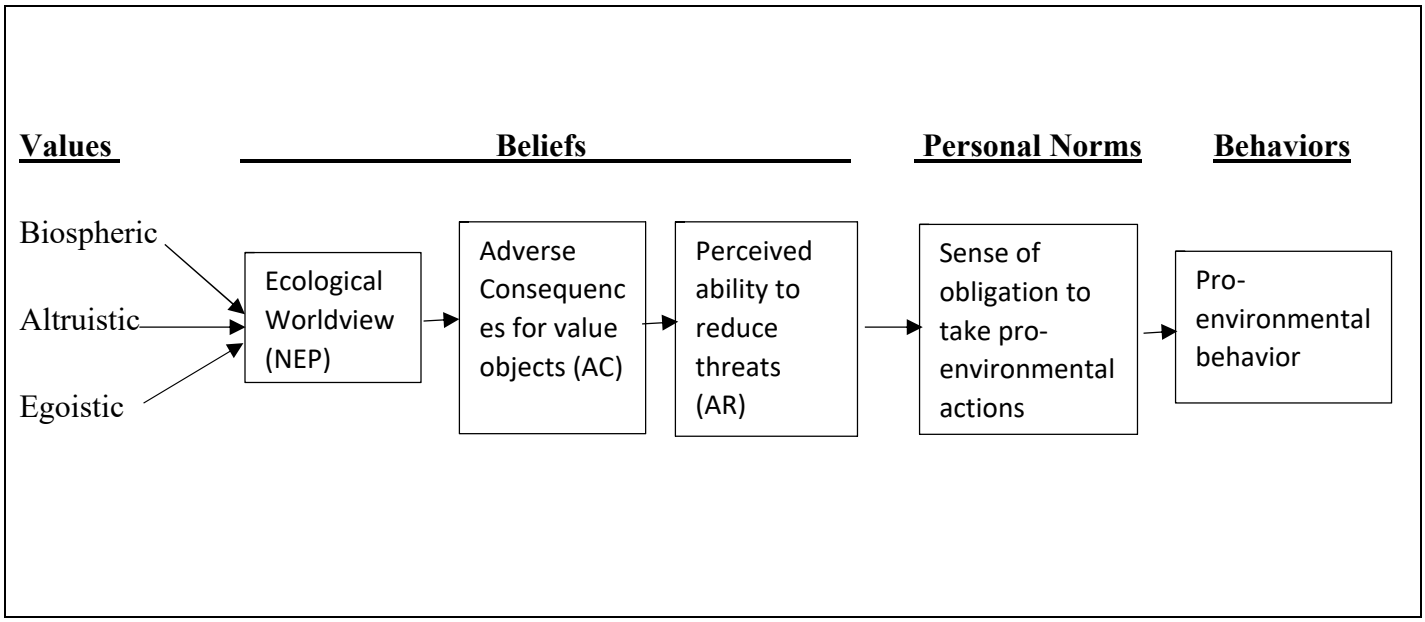

Figure 2: A Schematic representation of VBN Theory of environmentalism(Paul C. Stern, 2000, p. 412)

Value orientation of individual to determined Pro-environmental behavioral intensions

In the VBN, the theory linked environmental concern and person's behavior with the values perspectives and depict the concept of values as " a desirable trans situational goal varying in importance, which serves as guiding principle in the life of a person or the other social entity" ("Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries," 1992). Based on the value thought presented by Schwartz("Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries," 1992)in his survey "Universals in the content of structure of values", the another researcher have developed three distinct instruments to measure precursors of environmental beliefs and behaviors(de Groot & Steg, 2007, 2008).

Values are the bottom line of any voluntary actions whereas interval values are the one which drive an individual towards certain decision, including biospheric, altruistic or egoistic(Shaw & Newholm, 2002).

The first value orientation presented is the biospheric value orientation which refers an individual concern for biosphere and non-human species in its surrounding as a whole(del Carmen Aguilar-Luzón et al., 2012).According to the Schwartz and Stern, biospheric value orientation comprises five different values i.e. i) Unity with nature ii) A word of beauty iii) Protecting the environment iv) Preventing pollution v) Respect for the earth (Schwartz, 1977; Paul C Stern et al., 1999). It is believed that, biospheric value offers an essentially important phenomenon to individuals toward environmental intensions and behavior(de Groot & Steg, 2007).

The second important cluster of value orientation stated by VBN is the altruistic value. This phenomenon first articulated by the (Heberlein, 1972) presupposes that, environment is public wealth and every individual deserve to get quality of environment and for that it is indispensable to hold strong altruistic motives to contribute towards environmental betterment. According to the (Schwartz, 1977), altruistic value is the those guiding principles in a person's life that emphasized the wellbeing of others. As well as, An individual with greater social-altruistic value will prioritized a moral obligation to protect the nature(Schwartz, 1970).

The third important dimension of Value orientation in VBN model is egocentric or egoistic group, who have concern for their own selves (del Carmen Aguilar-Luzón et al., 2012).The elements that considered to made up this value orientation, according to the (Schwartz, 1977) are , "authority", "social power", "healthy", "influential".

The beliefs regarding the towards Pro-environmental: NEP, AC, AR

In order to solve the environmental and social problem addressed in mechanistic economic paradigm, the new multidisciplinary economic profile has been introduced to provide meaningful and life enhancing economic and environmental development which is "New economic paradigm" (Ove, 2017). The NEP depicts the earth as a system closely interacting and interdependent subsystems where every system is connected and dependent to each other's to conceive a meaningful world to everyone.

The NEP in the theory defined as the variables, which shared the general visions of the world, where profound interrelationship between individual and environment is emphasized(Paul C. Stern, 2000; Paul C Stern et al., 1999).

According to the Ove Jacobsen in his book entitled ”Transformative ecological economics: Process philosophy, Ideology and Utopia”, he set forth the distinct interpretation for NEP i.e. “Interrelatedness between market, society and environment”, “Circularity for sustainability”, Inherent values of all human and non-human objects, “Process based economy”, “ Co-creation of new interactive society”(Ove, 2017).

The second beliefs stated by the theory is Awareness of adverse consequences (AC). The awareness of consequences pointed out in VBN model is defined as a person’s consciousness towards the environment from their own behavior or action to not to turn out in environmental degradation (Schwartz, 1977).The theory postulates that the most essential elements that is important to activate the personal norms is the AC, where individual who have valued all the human and non-human objects well-being will be more concerned for environmental conditions that threaten those valued objects(Paul C. Stern, 2000)**.** To conclude, following hypothesis is put forward;

H4: There is a positive relationship between the awareness of consequences and pro-environmental personal norms.

The another types of beliefs framed by (Schwartz, 1977) is ascription of responsibility (AR).This variables is taken from the Norm activation model proposed by (Paul C. Stern, 2000; Paul C Stern et al., 1999). The number of studies summarized that AR deal with the person’s feeling of responsibility for the negative out turned of not being liable towards environment(M. F. Chen, 2015; J. I. M. De Groot & L. Steg, 2009).On this following note we have develop the following hypothesis:

H6: There a positive relationship between ascribed responsibility and pro-environmental personal norms.

The VBN theory also offer an account of attitude formation which deal with new and changing attitude of individual over the time and situation and exemplify that, how individual environmental beliefs of consciousness of actions and feelings of liability towards environmental issues form an attitude (Paul C. Stern, Kalof, Dietz, & Guagnano, 1995).In line up with (Bonnes et al., 2003), Attitude is the sum of products of beliefs, where individual who are aware of threats caused by relevant behavior and their feelings of sense of concern and responsibility towards environmental issues hold positive attitude towards pro-environmental

behavioral intension. consequently, based on these holds, we have developed following hypothesis:

H5: Awareness of adverse consequences (AC) determined the positive environmental attitude.

H7: Ascription of responsibility (AR) determined the positive environmental attitude.

Personal norms (PNs) as a determinant of pro-environmental behavioral intension

The PNs are the last part of the VBN casual chain that predicts individual behavioral intensions to act pro-environmental(Paul C Stern et al., 1999).Where as PNs in the Norms activation model is stated as one's moral obligation associated with the behavioral decisions in order to avert negative impact on the environment(Schwartz, 1977). To stimulate the PNs, the individual must be receptive towards the environment about results bring out from their actions or behavior as well as the sense of responsibility or liability towards environment to contribute to the problems and its solution for environmental betterment (de Groot & Steg, 2008).

Whereas in the VBN model, the empirical studies of Stern et al .test the relationship and find a strong positive influence of a PNs on pro-environmental behavioral intensions and proclaim that, PNs is the only statistically strong variable among the lists of casual variables to influence individual intensions to act in a certain ways (Nordlund & Garvill, 2016; Paul C Stern et al., 1999) and many evidence to date supports the relationship articulated in VBN theory and said that PNs explain a 52% amount of the variation in pro-environmental behavioral intensions (Turaga, Howarth, & Borsuk, 2010). Based on this theoretical conviction we proposed following hypothesis:

H8: There is a positive relationship between personal norms (PNs) on the pro-environmental intensions for green purchase decision.

Pro-environmental behavioral intensions to make green purchase decision

In the TPB, behavioral intensions is defined as the behavioral plans that, in conjunction with appropriate opportunities and resources, enable accomplishment of a behavioral goal (Ajzen, 1996). Icek Ajzen pioneered the concept of behavioral intension and define it as the immediate antecedent for the behavioral actions (Ajzen, 1985). Whereas According to the Icek Ajzen, higher level of willingness or the obvious intensions in turn to greater chances of bring out the

behavioral actions. In our case, more obvious intensions of a persons to protect the environment guided to make more green product purchase decisions. In line with this (Md.RaziuddinTaufique, 2018) affirmed that, environmentally responsible consumers are said to be act for the environmental betterment.

There are numerous studies empirically supported that there is strong correlation between intentions and actual behavior and behavioral intensions was speculated as the best predictor of behavior among the available variables(Albayrak, Aksoy, & Caber, 2013; Gorokhova, 2015; Han, 2015b; Turaga et al., 2010). The TPB considered the behavioral intensions as the central concept of the theory and exemplified that stronger the intensions to perform the behavior, the stronger the tendency to actually performing that behavior(Ajzen, 1991a).Likewise, Stronger the his/her pro-environmental intensions to make green purchase decision greater the likelihood of actually purchasing green(Y.-S. Chen & Chang, 2012). Based on the above empirical evidence, here we developed the following hypothesis:

H9: There is a positive relationship between pro-environmental intensions to make a greener purchase decision.

CHAPTER 3: Conceptual Framework

Unified Model Comprising TPB and VBN

This research paper builds on Ajzen's theory of TPB and on Stern's VBN in order to predicts pro-environmental intensions to determined consumer's green purchase behavior. In order to meaningful construct and more comprehensive pictures of the total variance in pro environmental behavioral intensions we merged this two theories and original variables established within the theories are taken into account., theories of pro-social and self-motives have been implied together in many research based on the assumptions that the unified theories mechanism possibly enhance the explanatory power of behavioral intensions towards green purchase.

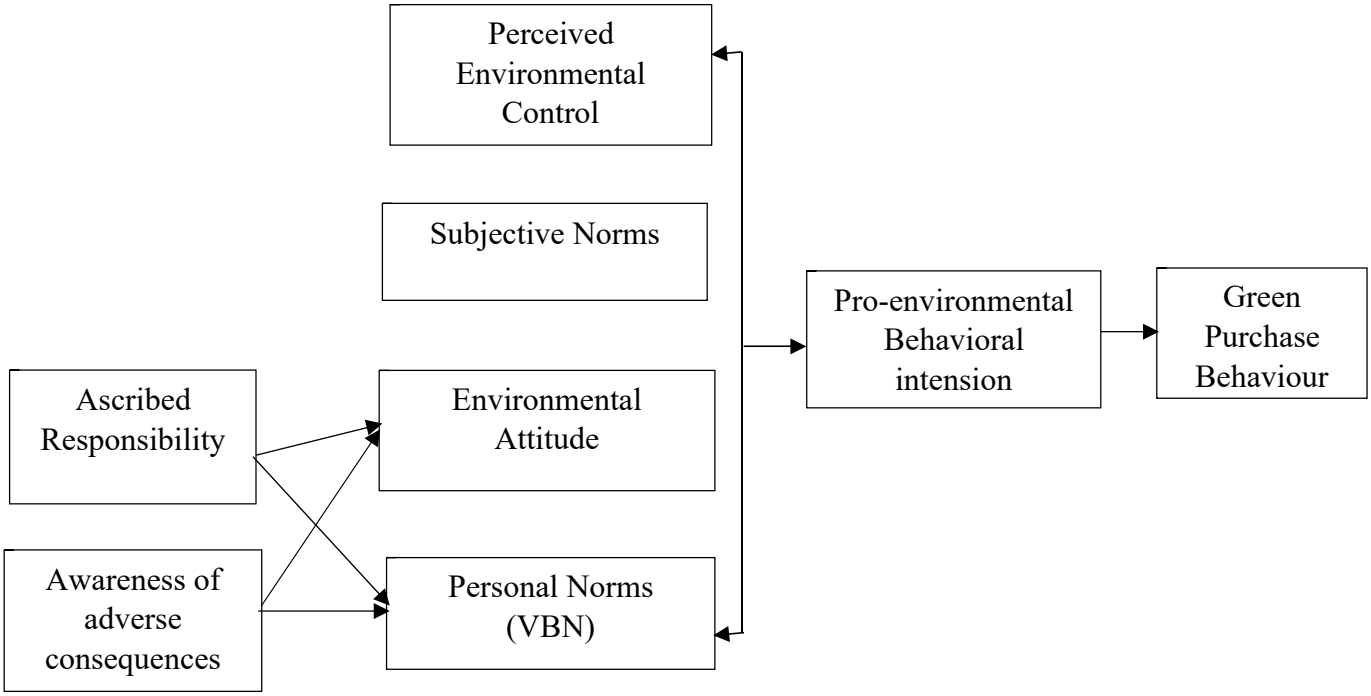

Figure 3: Proposed Research Model

The TPB model has been extensively used to explain and predicts behavioral intensions in a variety of domain and many studies supported the positive and direct association between individuals attitude, subjective norms and perceived behavior control to determined individuals behavioral intensions(Han, 2015a; S. Kalafatis, M. Pollard, R. East, & M. H. Tsogas, 1999; Lucy Chan, 2013; Wickmann & Brente, 2013). With respect to pro-environmental intensions, TPB has been used widely to explain behavioral intensions of green consumerism, water conservation, energy management and waste recycling (Botetzagias, Dima, & Malesios, 2015; Gao, Wang, Li, & Li, 2017; George, 2004; Oreg & Katz-Gerro, 2006).

In order to improve the inadequacy in TPB or to acquire more predictive power to the theory, it is important to understand both that the external and internal factors influences in intension which ultimately influence the consumer green purchase decision, we used Unified model and added additional variables from VBN model. From VBN model, we considered for the moral consideration. The flowing hypothesis from this unified model are to be tested to answer the research questions:

Table 2: List of Hypothesis

H1	H1: There is direct and positive relationship between pro-environmental attitude and pro-environmental behavioral intensions towards green purchase decision.
H2	H2: There is a direct and positive relationship between subjective norms and individual pro-environmental intensions towards green product purchase behavior.
H3	H3: There is a direct and positive relationship between consumers' perceived environmental effectiveness and their intention to behave in a pro-environmental manner.
H4	H4: There is a positive relationship between the awareness of consequences and pro-environmental personal norms.
H5	H5: Awareness of adverse consequences (AC) determined the positive environmental attitude.
H6	H6: There a positive relationship between ascribed responsibility and pro-environmental personal norms.
H7	Ascription of responsibility (AR) determined the positive environmental attitude.
H8	H8: There is a positive relationship between personal norms (PNs) on the pro-environmental intensions for green purchase decision.
H9	H8: There is a positive relationship between personal norms (PNs) on the pro-environmental intensions for green purchase decision.

The proposed research model comprises all the original independent variables from both TPB and VBN model except the "perceived environmental effectiveness (PEE)" instead of "perceived behavioral control" because, when it related to the environment, PEE reflects the individual locus of control on behavior(Cleveland, Kalamas, & Laroche, 2012b). And all the independent and dependent variables have positive relation to determine individual intension to make green purchase decision.

CHAPTER 4: Research Methodology

This chapter deals with an overview of chosen approach/method for data collection, also to answer the research questions. This chapter incorporate with research design, demonstrate data collection, adjustment method, describe data analysis method and construct validity and reliability.

In general, we can define research as a search for knowledge. It is a scientific and systematic search for apposite information on a specified topic. In fact, Research is an art of scientific investigation(Kothari, 2004). Redman and Mory define research as a "Systematized effort to gain new knowledge"(Redman & Mory, 1933). Similarly, According to Clifford Woody "Research comprises defining and redefining problems, formulating hypotheses or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis"(Woody, 1927). So, research is a search for knowledge via systematic method and finding solutions to a problem.

4.1 Research Philosophy

The term research philosophy refers to a system of beliefs and assumptions about the development of knowledge (M Saunders, P Lewis, & A Thornhill, 2009). In research philosophy mainly we examine three assumptions i.e. Epistemology, ontology and axiology. Burrell and Morgan argued that in every stage of our research we make several assumptions; this include assumptions about human knowledge (epistemological assumptions), about the realities you encounter in your research (ontological assumptions), and the extent and ways your own values influence your research process (axiological assumptions) (Burell & Morgan, 1979; Mark Saunders, P Lewis, & A Thornhill, 2009). Ontology: this refers to the assumption related with nature of reality. Epistemology whereas assumptions about knowledge, what constitute acceptable, valid and legitimate knowledge, and how we can communicate knowledge to others (Burell & Morgan, 1979). Similarly, axiology argue that values and ethics has greater role within the research process. The authors further classified epistemology assumptions into three parts i.e. Positivism, interpretivism, and realism. Indeed, we are following positivism since we are conducting our research within Norwegian consumers, it means that we work with an observable social reality.

4.2 Research Approach

According to the Saunders, there are three approaches for theory constructions which are: deductive, inductive, and abductive approach. Based on his approach (Mark Saunders et al., 2009); If the research starts with theory, often developed from reading the academic literature and design a research strategy to test the theory, then it is termed as a deductive approach. It is often characterized by top to down approach. Conversely, If the research begins by collecting data to explore a phenomenon and generate or build theory (often in the form of a conceptual framework), then it is called inductive approach. It is characterized by down to top approach and finally, If the data collection begins to explore a phenomenon, identify themes and explain patterns, to generate a new or modify an existing theory which can be subsequently tested through additional data collection then it is called abductive approach. We are going to use deductive approach for our thesis because the problem associated with our thesis arise from existing theories. The theory of planned behavior (TPB) is our main theory to study the consumers attitude and their behavioral intention towards green purchase. With the help of this deductive approach, will we be enabled to assemble data from respondents, which is used to evaluate hypothesis to an existing theory.

4.3 Research Strategy

Basically, there are three approaches to deal with research design and they are: qualitative and quantitative and mixed approach (Creswell & Creswell, 2017). Choosing an appropriate research strategy is inevitable for best research outcome.

Quantitative Approach: Is characterized by deductive approaches to the research process aimed at proving, disproving, or lending credence to existing theories(Leavy, 2017). In this approach, measuring variables and testing relationships between variables is important to reveal patterns and correlation. The main source of quantitative data is through surveys, collecting data through observation, and using secondary data sources (Easterby-Smith, Thorpe, & Jackson, 2012).

Qualitative Approach: Is generally characterized by inductive approaches to knowledge building aimed at generating meaning (Leavy, 2017). Researchers prefer this approach because it is suitable to explore, investigate and learn about social phenomenon. In this method, data

can be collected through in-depth interviews, case studies etc. This method attempt to capture subjective understandings of the external world from the perspective of participants and abandons the task of representing an objective unchanging external reality (Easterby-Smith et al., 2012).

Mixed Approach: Third approach is the combination of two, qualitative as well as quantitative approach which is also called mixed approach.

In our research study, we have chosen quantitative approach, because our research is based on consumers behaviors, opinions and attitudes. Also, the main motive of our research questions is to study the relationship between consumer environmental awareness and their green purchase intentions and behaviors. Thus, quantitative research method is appropriate approach for our study.

4.4 Research Design

Research designs are about organizing research activity, including the collection of data, in ways that are most likely to achieve the research aim (Easterby-Smith, Thorpe, & Jackson, 2015). Similarly, the research design is a framework for research planning and to address the research questions. While creating a research design the following terms are essential: required data type, location and timescale of the research, participants and sources, relevant variables and hypothesis, and methods for collecting and analyzing data (Scribbr, 2019). The research design helps to place parameters in our project which evaluates what to include and what not to do. Similarly, Research design also describe criteria where we can evaluate our results and draw conclusions. Finally, we can also test the reliability and validity of our study, but the result relies on our data collection, measurement, analysis and interpretation of the data.

In our research study, we also have some control variables like gender, age, nationality, education and status which is not part of an experiment (not dependent or independent variable); but still it is important because it can have some considerable effect on the outcome. For instance, level of education can influence the consumers purchase decision of green products because of their acquired knowledge or level of awareness towards green product. Similarly, age factor, we assumed that adult consumers may prefer more green products than young consumers which may give significant effect on the outcome. One author's defined,

Control variables are commonly used to capture factors that are broadly defined as extraneous to the desired effect-sometimes also referred to as nuisance(Carlson & Wu, 2012).

4.5 Sampling Design

Sampling design starts with defining a population. The term population refers to the whole set of entities that decisions relate to whereas the term sample refers to a subset of those entities from which evidence is gathered and finally inference use evidence from sample to draw conclusions about the population (Easterby-Smith et al., 2012). The main purpose of this research is to study the behavioral intention of consumers to buy green products. In our study, the population can be defined as those who make green product purchase decision; who is aware of the green product or at least have basic knowledge about what green product is and the consequences of their choice to the environment.

Again, two broad terms can be used to define sampling design; the first step is to draw up a sampling frame, a list of all who are eligible to be included in the study and the second step is to achieve a valid response from all those included in the sampling frame (Easterby-Smith et al., 2012). We are using convenience sampling method because the sample of our research would be Norwegian consumers (native Norwegian as well as foreigners who are living in Norway for different purpose like student, office worker etc.) and are over 18 years old.

4.6 Data Collection

In research, data collections methods mainly fall into two categories i.e. Primary data and secondary data. We have collected data through online surveys because surveys ask questions to assess constructs such as preferences (e.g. for a tax cut), opinions (whether drugs harmful), behavior(whether loyalty encourages purchasing), or facts(family size)(Westland, 2016) . Our target consumers were Norwegian consumers. Norwegian consumers mean native Norwegian as well as foreigners living in Norway for many years. Basically, data can be collected through primary or secondary source.

- **Primary data:** First-hand data/information collected for the first time by the researchers. Primary data can be collected through different sources like surveys, observations, questionnaire, personal interviews etc.
- **Secondary data**: This data is already collected or produced by others. Also, the interpretation and analysis of the primary data. The secondary data sources are previous research, government publications, books, journals, articles etc.

But in our study used the primary data collected through online survey. We collected data from online google survey. The survey questions were posted on several Facebook groups which is popular in Norway for instance New to Oslo group, Bodø I dag group etc. with the permission from respective admin. Also, we collected data from our co-workers. We have also sent collective message to the student through canvas etc. The most effective one is from our co-workers which means where we work. We collected data from 28 October to 07 November.

The questionnaire was designed in simplified English language, because our target consumer can be any age group starting from 18 years old with different knowledge of English language. In order to get more response, we personally sent message through Facebook and even talking face to face and reminds to fill up the questionnaire. In order to fill up the designed questionnaire for our survey, it had to take 5 to 6 minutes to complete. We opened our survey accepting respondent's response for 10 days, we got 206 response from our respondents.

For the quantitative data analysis, we have used 14 days trial version of IBM SPSS statistics 26 which was downloaded from university official website. But the 14 days trial version of SPSS was not enough for us for data analysis and again we requested for the same trial version of SPSS from university where we had to get permission from our advisor and eventually, we got SPSS trial version for a month. But SPSS software is not sufficient for us to perform PLS path model, to test reliability and validity, so we decided to download trial version of Smart PLS 3, and we got the license key from the authority and we used Smart PLS 3 for data analysis.

4.7 Construct Measurement

Each construct was measured with four items using the five-point Likert scale. Since we are using survey research, Likert scales are the highly preferred approach in scaling response. Also, the reason behind choosing Likert scale is to allow respondents to express both the direction

and strength of their opinion about a topic(Westland, 2016). In order to measure intention and behavior of consumer they can express their opinions/attitudes towards green products through designed symmetric agree-disagree scale for a series of statements. On the other hand, talking about questionnaire, some items were borrowed from (C.-C. Chen, Chen, & Tung, 2018), (Milfont & Duckitt, 2010) and (Ghazali, Nguyen, Mutum, & Yap, 2019). The items were redesigned in order to make them appropriate in our context of consumers green purchase choice.

In order to check our proposed hypotheses, it is crucial to measure each construct included in the conceptual framework along with pro-environmental behavioral intention to buy green product as well as their green purchase behavior. Ascribed responsibility and awareness of adverse consequences towards pro-environmental beliefs and pro-environmental personal norms simultaneously. Similarly, perceived environmental effectiveness towards pro-environmental behavioral intentions, normative beliefs, pro-environmental beliefs, Pro-environmental personal norms influence pro-environmental behavioral intentions and ultimately their green purchase decisions.

In connection with preceding construct, measurement unit for each construct were formulated and our unit of analysis is an individual consumer. In our research, generally we are going to use two measurement scale - category scales i.e. nominal scales where no natural ordering for instance age, gender, nationality etc. On the other hand, ordinal scale has natural ordering (Easterby-Smith et al., 2012) and all the questions about variables from research model falls under ordinal scales. All the measurements unit were developed using a five-point Likert scale[2], where respondents can express their opinion from five given options with single mark. They are: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Each construct was measured with four items each using five-point Likert scale. All the measurement that need to be tested through reliability and validity. Reliability is a consistency of measurement in a composite variable formed by combining scores on a set of items; can be measure by Cronbach's alpha coefficient[3] (a value greater than 0.70 indicates an acceptable level of reliability) (Easterby-Smith et al., 2012).

[2] Likert Scale: a form of ordinal category scale for measuring attitudes from very positive to very negative (Easterby-Smith et al., 2012, p. 342).
[3] Cronbach's alpha coefficient: an index of the internal consistency of a composite variable formed by combining a set of items; a common measure of reliability (Easterby-Smith et al., 2012).

Validity can be defined as internal and external. External validity whether the results of the research can be generalized to other settings or contexts whereas internal validity assurance that results are true and conclusions are correct through elimination of systematic sources of potential bias (Easterby-Smith et al., 2012).

Table 3: Construct Measurement

Constructs	Description	Items	Measurement items	Sources
Ascribed Responsibility	One's own sense of responsibility to reduce adverse environmental consequences (Paul C Stern et al., 1999).	AR1 AR2 AR3 AR4	• Solidarity and shared responsibility are need among people to protect the environment • I feel equally responsible for global warming • I feel buying green products is fulfilling my responsibility to the environment • As a consumer I have a greater role in protecting the environment	(Ghazali et al., 2019)
Awareness of Consequences	One's consequences of adverse environmental consequences of certain behaviors and action (Paul C Stern et al., 1999).	AC1 AC2 AC3 AC4	• It is obvious that global warming is a real threat to the planet • The exhaustion of fossil energy sources (i.e. oil, coal, and natural gas) is a problem • Environmental protection enhances my quality of life • Environmental protection means a better world for future generation	(Ghazali et al., 2019)
Perceived Environmental Effectiveness	…the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in questions (Ajzen, 1991b).	PEE1 PEE2 PEE3 PEE4	• I have a full control over buying green products • I have a freedom to choose green products whenever I buy • I called myself as a green product consumer • I am also the one who is concerned about environmental issues	(C.-C. Chen et al., 2018)
Subjective Norms	…refers to the perceived social pressure to perform or not to perform the behavior(Ajzen, 1991b).	SN1 SN2 SN3 SN4	• I feel that using green products is 'the right thing to do'/ righteous • I think buying green product is essential • I think buying green product is appropriate • Most of the people who are important to me think that I should buy green products	

Environmental Attitude (EA)	…are a psychological tendency expressed by evaluating the natural environment with some degree of favor or disfavor (Milfont & Duckitt, 2010).	EA1 EA2 EA3 EA4	• I am aware that, buying green products will contribute positively to the environment • I often try to persuade others that the environment is important • It makes me sad to see natural environments destroyed. • Concern about the environment are exaggerated	(Milfont & Duckitt, 2010)
Personal Norms	Feelings of obligation for environmental protection	PN1 PN2 PN3 PN4	• I feel guilty when I don't preserve the environment/planet • I feel an accountable to buy green products whenever possible • I feel I must do something to protect our environment for future generations • I feel legally liable to act in an environmentally friendly way	(Ghazali et al., 2019)
Pro-Environmental Intention	In terms of trying to perform a given behavior rather than in relation to actual performance(Ajzen, 1991b).	IN1 IN2 IN3 IN4	• I avoid buying product which are potentially unfavorable to the environment • I plan to buy green products in the future • My contribution to reduce global warming, I will buy green products • I feel that, how my decisions may affect to the environment	(C.-C. Chen et al., 2018)
Green Purchase Behavior	…any action that can protect the environment as a whole from the from the destructive effect of human behavior(J. I. De Groot & L. Steg, 2009).	BE1 BE2 BE3 BE4	• I feel that, I am playing great role helping better environment when I buy green product • I want to buy green product again after my first purchase. • I am very satisfied with the green products • I would recommend green products also to my family and friends.	

4.8 Demographics Characteristics of Respondents

The following table deals with respondent's demographics characteristics, the respondents are Norwegian consumers. As we mentioned earlier, Norwegian consumers means people living in Norway for various reasons for instance students, workers etc. can be a consumer. Based on that, people from different country participated in our survey.

We assembled 206 total responses from the respondents after running the online questionnaires for eleven days i.e. from 28 October 2019 to 07 November 2019. All the valid responses i.e. 206, can be considered as a sample from the target population. Majority of the respondents were female, it means female consumers in our context and it is 113 out of 206 in total or 55% of total sample. Similarly, the respondents age group between 24-34 was quite impressive 71% of total sample. Likewise, we made an open question in regards with nationality, but the respondents were Norwegian consumers but representing different countries. So, regarding with the simplicity, we have categorized them according to the continent like Europe, Asia, Africa, America etc. In-fact, almost 74% respondents from Europe. Many of the respondents were students in different segments like bachelor, masters etc. whereas only 9.2% respondents were engaged in their respective professional career. Based on this narrative, the overall data summary of collected sample is presented on the following table.

Table 4: Demographics characteristics of respondents

Characteristics	Variables	Frequency, N = 206	Percentage, 100
Gender	Female	113	54.9
	Male	92	44.7
	Do Not Answer	1	0.5
Age	Below 24	31	15.0
	25-34	147	71.4
	35-44	19	9.2
	45 and Over	9	4.4
Nationality	European	152	73.79
	Asian	45	21.84
	American	3	1.46
	African	4	1.94
	Do Not Answer	2	0.97
Education	Bachelor's Degree	82	39.8
	High School Graduate	41	19.9
	Master's Degree	61	29.6
	Medical Doctor	1	.5
	Phd	2	1

	Professional Degree (Kokk, Manager, Nurse)	19	9.2
Status	Employed	77	37.4
	Employed Student	1	.5
	Lærling	1	.5
	Self-employed	48	23.3
	Student	66	32.0
	Unemployed	13	6.3

4.9 Construct Validity and Reliability

Reliability is the consistency of measurement in a composite variable formed by combining scores on a set of items; can be measured by Cronbach's alpha coefficient(Easterby-Smith et al., 2012). Also, the value of Cronbach's alpha coefficient greater than 0.70 denotes an acceptable level of reliability. Similarly, validity the extent to which measures and research findings provide accurate representation of the things they are supposed to be describing(Easterby-Smith et al., 2012). There are two types of validity internal and external validity; internal validity assurance that results are true, and conclusions are correct through elimination of systematic sources of potential bias. On the other hand external validity examine whether the results of research can be generalized to other settings or contexts(Easterby-Smith et al., 2012). In this research model, it consists 8 latent constructs and 32 measurement items, it means each latent construct consists 4 measurement items. Thus, it is necessary to check whether there is a consistency or not among each construct; also need to make sure that whether each construct is measuring same thing or not. Therefore, just to enrich reliability and validity of measurement model, various statistical indicators were measured and analyzed.

Among several statistical tools, basically we examine the convergent validity and reliability test on the basis of following indicators; firstly, each measurement item validity examined through factor loading analysis, secondly, the reliability measured with Cronbach's α, CR and AVE.

Similarly, the discriminant validity of the measurement model was examined through Fornell-Larcker Criterion 1981 which compares the square root of average variance extracted with the correlation coefficient of respective items, items cross loadings, and Heterotrait- Monotrait (HTMT) ratio of correlation.

Chapter 5: Data Analysis

This chapter deals with the discussion and analysis of the data generated through SPSS. Likewise, after analysis of the data, the conclusion is drawn based on the analysis. Also, the results are presented here and analyze the primary data which was assembled through questionnaire survey.

In this section, the partial least square structural equation modeling (PLS-SEM) technique was used with the software called Smart PLS 3 for data analysis. PLS-SEM relies on a nonparametric bootstrap procedure to test the significance of estimated path coefficients in PLS-SEM(Efron & Tibshirani, 1994). First and foremost, the measurement model analysis was measured on the basis of structural model and a confirmatory factor analysis (CFA) and its output analysis. In these regards, the measurements items of each construct were determined and assessed correlations among latent factors through covariance matrix. So, our initial analysis, the results generated through SmartPLS 3 were reflective indicator loadings, average variance extracted, rho_A, composite reliability, Cronbach's alpha and cross loading which were discussed below. Hence, the result of the initial analysis was presented on the following table 5 and appendix 2.

Similarly, in the second stage of data analysis, the analysis of structural model testing (hypothesis testing) were scrutinized. Further, in order to examine the significance of path coefficients, complete bootstrapping function were applied in Smart PLS3 with the subsample of 5000 then used to estimate the PLS path model. Finally, the result generated through complete bootstrapping were path coefficients, R square(R^2), Average variance extracted (AVE), Composite Reliability (CR), Cronbach's alpha and Heterotrait-Monotrait ratio (HTMT) which is summarized on table 5 and 6 and appendix 4 and 5.

5.1 Measurement Model Assessment

Measurement model shows the relationship between observed variables and latent variables. Similarly, measurement models refers to the implicit or explicit models that relate the latent variable to its indicators (Bollen, 2002). This model covers indicator reliability, convergent reliability, internal consistency and discriminant validity.

5.1.1 Items reliability

Item reliability which indicates the items loading or factor loading with respect to each construct. Moreover, factor loading means, the weight allocated to the path between a latent variable and an observed variable in a measurement model(Easterby-Smith et al., 2012). Different scholars have given different threshold for factor loading which was found greater than 0.7(Carmines & Zeller, 1979). However, in our research we have set 0.5 threshold as prescribed by (Hulland, 1999) was considered for items reliability. As shown in the table 1, the overall factor loading consisted in the range between 0.557 to 0.865. Majority of the loadings are categorized as higher loadings because they are higher than 0.7. The least one is in perceived environmental effectiveness (PEE4). Hypothesis ascribed responsibility two items (AR2, AR4) included in the higher loadings i.e. 0.781 and 0.796 where as other two AR1 and AR3 were also closed to the higher loadings 0.692 and 0.694. Hypothesis 2, awareness of adverse consequences also consisted in the higher loadings i.e. 0.734, 0.779 and 0.846 except AC2 which was 0.698. Hypothesis 3 Perceived environmental effectiveness PEE1 and PEE3 lies in the higher loadings and PEE2 and PEE4 had loadings 0.654 and 0.557 respectively. Similarly, Hypothesis 4, subjective norms 3 items loadings included in the higher loadings ranged from 0.789 to 0.832 but SN4 had 0.653. Hypothesis 5, All items are included in the higher loadings except EA3 i.e. 0.604. All the items in hypothesis Personal Norms were consisted in higher loading, each item loaded range from 0.750 to 0.796. Also, the hypothesis 7, pro-environmental behavioral intention consisted within higher loading and loaded with the range of 0.758 to 0.764. Finally, in the last hypothesis green purchase behavior the items BE1, BE2 and BE4 lies within the range of 0.767 to 0.794 except the item BE3 which had 0.697.

So, based on the (Hulland, 1999) criteria, the reflective indicator loading >0.5, shows item is a good measurement of the latent construct that's why our items reliability were achieved.

5.1.2 Construct Validity

Basically, there are two types of construct validity: Convergent and discriminant validity. **Convergent validity:** if there is a strong relationship between a particular measure and one or more other alleged measure of the same construct, the given measure is said to possess convergent validity(Bollen, 2014, p. 32). The measurement item of the convergent validity was determined by the average variance extracted(AVE)(Fornell & Larcker, 1981), Cronbach's alpha(Nunnally, 1978), rho_A and composite reliability (Gefen, Straub, & Boudreau, 2000).

As data presented on the table 1, in order to measure convergent validity, AVE should exceed 0.5 according to (Fornell & Larcker, 1981). But in our case, AVE is less than 0.5 in all construct. Similarly, composite reliability are said to be greater than 0.7 (Gefen et al., 2000), we have, as data presented on the table 1, among 8 constructs in total 6 constructs has exceeded the standard cut off point 0.7 and only two construct were below 0.7. Likewise, Cronbach's alpha and rho_A also has threshold standard point 0.7(Easterby-Smith et al., 2012), but in our research study, as the data presented on table 1, only 6 constructs from has exceeded the cutoff point 0.7 in terms of Cronbach's alpha and rho_A and other two constructs has not exceeded the cutoff point in both case.

Table 5: Confirmatory factor analysis (CFA)

Construct	Items	Reflective indicator Loadings[a]	AVE[b]	rho_A[c]	CR[d]	α[e]
Ascribed Responsibility	AR1	0.692	0.402	0.730	0.728	0.726
	AR2	0.796				
	AR3	0.694				
	AR4	0.781				
Awareness of Adverse Consequences	AC1	0.734	0.456	0.778	0.768	0.763
	AC2	0.698				
	AC3	0.779				
	AC4	0.846				
Perceived Environmental Effectiveness	PEE1	0.762	0.285	0.638	0.598	0.621
	PEE2	0.654				
	PEE3	0.754				
	PEE4	0.557				
Subjective Norms	SN1	0.832	0.441	0.762	0.758	0.754
	SN2	0.839				
	SN3	0.789				
	SN4	0.653				
Environmental Attitude	EA1	0.837	0.222	0.571	0.495	0.446
	EA2	0.837				
	EA3	0.604				

	EA4	0.865				
Personal Norms	PN1 PN2 PN3 PN4	0.796 0.750 0.778 0.796	0.476	0.786	0.784	0.785
Pro-Environmental Behavioural Intention	IN1 IN2 IN3 IN4	0.788 0.764 0.770 0.758	0.457	0.772	0.771	0.771
Green Purchase Behaviour	BE1 BE2 BE3 BE4	0.767 0.778 0.697 0.794	0.439	0.761	0.756	0.755

Notes*

a) Reflective indicator loadings > 0.5, shows item is a good measurement of the latent construct (Hulland, 1999, p. 198)
b) Convergent reliability - Assessed using Average Variance Extracted(AVE) comparable to the proportion of variance explained in factor analysis(values between 0 and 1) AVE>0.5(Bagozzi & Yi, 1988; Fornell & Larcker, 1981).
c) Internal reliability measured by rho_A[c] >0.7
d) Internal consistency- Also known as Composite Reliability (CR); measures the reliability of the indicators where values are between 0 and 1. CR>0.7 adequate consistency(Gefen et al., 2000).
e) Cronbach's alpha coefficient (α) – an index of the internal consistency of a composite variable formed by combining a set of items; a value i.e. $\alpha > 0.70$ indicates an acceptable level of reliability(Easterby-Smith et al., 2012) evaluates the reliability of the items in terms of unidimensional of a set of scale items, it's a measure of the extent to which all the variables in the scales are positively related to each other(Nunnally, 1978). Overall, majority of the construct in convergent validity was established except AVE, where none of the construct has reached the minimum threshold.

5.1.3 Discriminant Validity

It is another type of construct validity. It defines that If there not a strong relationship between a particular measure and one or more other measures that are alleged to operationalize different but easily confusable constructs(Powers, Knapp, & Knapp, 2010). In order to check the discriminant validity, first we checked the square root of average variance extracted with the correlation coefficient of particular also it should be greater than all correlation coefficient items(Fornell & Larcker, 1981). But as shown in the appendix 1, the dark shaded diagonal number supposed to be greater than rest of the coefficient of latent variable which was on off diagonal, but it was not happened in our study. Because of this reason our findings has not meet the criteria of (Fornell & Larcker, 1981) in appendix 1, so, our discriminant validity has not been established.

Similarly, as an alternative way, we had an assessment of convergent validity through cross loadings criterion. Each indicator should load highest on the construct it is associated with (variations in recommendations regarding differences between loadings and cross loadings; max. vs. 0.1 difference(Henseler, Ringle, & Sarstedt, 2015). It was supposed to be the higher items loading in the desired construct among all other cross loadings in the column section. Also, our convergent validity through cross loading has not been established which was supposed to be established for fair results.

Although, (Fornell & Larcker, 1981) criterion and cross-loadings has gained popularity among marketing researchers(F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014), several other scholars has criticized the (Fornell & Larcker, 1981)criterion because this criteria is not effective in some circumstances like the assessment of cross-loadings will support discriminant validity when the (Fornell & Larcker, 1981) criterion fails to do so(Henseler et al., 2015). In order to overcome this issues or criticism(Henseler et al., 2015) proposed the new way of validity measurement i.e. heterotrait-monotrait (HTMT) correlations as a new approach to assess discriminant validity in variance-based SEM.

In the following table 6, the tested result presented of discriminant validity through HTMT criteria. Based on that table, the calculated yields value of HTMT lies between 0.702 to 1.232. The only one calculated yield i.e. 0.702 (Perceived environmental effectiveness and awareness of adverse consequences) met both criteria of threshold values of HTMT.**85** to HTMT.**90** confidence interval(Henseler et al., 2015). But other three calculated yield has met the threshold criteria, it means the yield value below of HTMT.**90** confidence interval. The HTMT.**90**

criteria met .873 (green purchase behavior and awareness of adverse consequences), .896(personal norms and perceived environmental effectiveness) and .888(personal norms and awareness of adverse consequences). Also, rest of the correlation ratio (majority of the ratios) has exceeded the both threshold criteria of HTMT.$_{85}$ and HTMT.$_{90}$ confidence interval. Hence, the discriminant validity of our research model has not been fully achieved.

Table 6: Heterotrait-Monotrait ratio of correlation (HTMT)

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Ascribed Responsibility (A)								
Awareness of Adverse Consequences (B)	1.039							
Environmental Attitude (C)	1.232	1.104						
Green Purchase Behavior (D)	1.033	**0.873**	1.169					
Perceived Environmental Effectiveness (E)	0.904	**0.702**	1.199	0.950				
Personal Norms (F)	0.932	**0.888**	1.243	0.961	**0.896**			
Pro-Environmental Behavioral Intention (G)	1.023	0.933	1.199	1.097	1.006	1.046		
Subjective Norms (H)	1.084	0.981	1.200	1.050	0.951	0.925	1.030	

Table 7: Structural Model Analysis

Hypotheses	Hypotheses Path	Std Beta(β)	Std Error	t-value	Decision	f^2	q^2	95%CI LL	95%CI UL
H1	Environmental Attitude-->Pro-Environmental Behavioral Intention	0.201	5.354	0.030	Not Supported	0.0181	0	-0.538	1.019
H2	Subjective Norms-->Pro-Environmental Behavioral Intention	1.008	56.546	0.004	Not Supported	0.1222	0.0246	-4.400	4.406
H3	Perceived Environmental Effectiveness-->Pro-Environmental Behavioral Intention	-0.870	59.370	0.013	Not Supported	0.0950	0.0192	-5.104	4.938
H4	Awareness of Adverse Consequences-->Personal Norms	0.050	31.207	0.038	Not Supported	0.1213	0.0422	-5.958	8.825
H5	Awareness of Adverse Consequences-->Environmental Attitude	0.141	54.877	0.042	Not Supported	-0.0449	0.1613	-12.934	16.673
H6	Awareness of Adverse Consequences-->Personal Norms	0.050	31.207	0.038	Not Supported	0.1213	0.0422	-5.958	8.825
H7	Awareness of Adverse Consequences-->Environmental Attitude	0.141	54.877	0.042	Not Supported	-0.0449	0.1613	-12.934	16.673
H8	Personal Norms-->Pro-Environmental Behavioral Intention	0.713	9.237	0.032	Not Supported	0.2036	0.0421	-2.273	4.265
H9	Pro-Environmental Behavioral Intention-->Green Purchase Behavior	1.096	0.043	25.308	Supported**	-	-	1.015	1.183

Notes: **P<0.01, *P<0.05

- Critical t-values for two-tailed test: t-value<1.96(p>0.05), t-value<2.58(p=0.05), and t-value>2.58(p<0.001)("t-critical values,," 2005).
- R^2(Environmental Attitude= 0.944, Personal Norms= 0.769, Pro-environmental Behavioral intention=1.122, Green purchase Behavior=1.205).
- Q^2 (Environmental Attitude= 0.211, Personal Norms= 0.312, Pro-environmental Behavioral Intention=0.430, Green Purchase Behavior=0.382).
- F^2 effect size impact indicator value of 0.02, 0.15 and 0.35 denotes small, medium and large effect size respectively(Hair, Risher, Sarstedt, & Ringle, 2019).
- Predictive relevance(q^2) value of 0.02, 0.15 and 0.35 represents small, medium and large predictive relevance(Hair et al., 2019).

Model specification in PLS-SEM modeling is important part. For instance, analyzed data through model set up structural model as well as measurement models. Which used to measure the relationship between the indicator variables and their corresponding constructs and analyzed the construct (F. Hair Jr et al., 2014). For the assessment of structural model's quality, we have assessed the coefficient determinization (R2), path coefficient, cross-validated redundancy(Q2) and effect size(F2). As proposed by (F. Hair Jr et al., 2014), consistent PLS bootstrapping was conducted, to ensure stability of results large number of bootstrap subsamples i.e. 5000 was used. The complete results of bootstrapping results were presented on the table 7.

Similarly, multicollinearity arise when there is a correlation between two or more predictors in the same model. Multicollinearity generally measured by variance inflation factor (VIF) and tolerance. VIF values of 5 or above indicate critical collinearity issues among the indicators of formatively measured construct also the collinearity issues can occur at lower VIF values of 3(Hair et al., 2019) authors also insisted that ideally the values should be close to 3 for perfect correlation. The Collinearity statistics presented in the appendix 4. Majority of the constructs in multicollinearity has not achieved properly or not exceeded the standard criteria as proposed by(Hair et al., 2019) but some are achieved because it was less than 3.

Data generated through bootstrapping, we have tested 9 hypotheses in total, out of nine hypotheses only one hypothesis is accepted. We have analyzed the data based on the t-value, p-value and standard beta which was also presented on table 7.

H1 hypothesized that pro-environmental attitude positively influences the consumers behavioral intension to buy green products. Based on the data, β=0.201, p-value>0.50 and t-value=0.030 concluded that H1 is rejected. Since the analysis and derived results from structural model, it is possible to say that Norwegian consumers attitude does not make any influences towards their intensions to performed green purchase behavior.

H2 stated the positive relationship between subjective norms of individual and their pro-environmental intension to buy green products. This hypothesis is rejected (β=1.008, p-value>0.05 and t-value=0.004). According to the structural model it was found that there is no influence of subjective norms to determine the intension of Norwegian consumers related to buying green products, which means hypothesis about positive relationship between these two variables is not supported. Hence in this case it can possible to say that, the subjective norms are not that influential or the opinion about the green products in the society is still formed so that it can configured the green purchase behavior.

H3 stated that individual perceived environmental effectiveness positively influences the behavioral intensions to determined green purchase behavior. Whereas analysis from the structural model showed opposite results for this hypothesis along with data, β=-0.870, p-value>0.50 and t-value=0.013. to conclude, it can be said that, Norwegian consumers control over their behavioral actions on purchase intensions is very weak and not statistically significant. Ajzen (1991) stated that consumers perceive control over buying process determined their behavioral intension but in our study H3 is failed to support this statement from “planned behavioral model”.

H4 represents the positive correlation between consumer awareness of adverse consequences of their actions towards the environment and personal norms. Hence the data does not support this relation too along with the β=0.050, p-value>0.05 and t-value>0.030. Which quotes that, Norwegian consumers consciousness of their actions in nature do not determined their moral obligations towards environment.

H5 postulates that individual awareness of consequences of their action has positively determined their pro-environmental attitude. Based on the data from structural model, the hypothesis is rejected with β=0.141, p-value>0.05 and t-value=0.042. It means, no matter how much Norwegian consumers are conscious about the consequences of their actions towards the environment that does not help to determine their attitude with respect to environmentally friendly purchase behavior.

H6 proposed that individual concerned towards environmental issues, Ascribed responsibility has positive relationship with the environmental personal norms. And this hypothesis is failed to support this relationship based on the data, β=0.851, p-value>0.05 and t-value=0.009. Which means Norwegian consumers belief about the environmental conservation cannot derived their personal norms to determine their purchase behavior.

H7 stated that individual feelings of sense of responsibility towards all the human and non-human objects in the environment has positive relationship with environmental attitude to determined green purchase behavior, and based on the data, β=0.974, p-value>0.05 and t-value=0.022 this hypothesis is not supported .Which means that consumer's ascribed responsibility does not determined the positive environmental attitude. This rejected hypothesis(H7) showed that, Norwegian consumers liability towards environment and concerned is not related to buying green products.

H8 holds positive correlation between personal norms and intensions to behave pro-environmentally. This hypothesized relationship between pro-environmental attitude influence over the behavioral intensions was not found significant along with the value, β=0.713, p-value>0.50 and t-value=0.032. Thus, our proposed sixth hypothesis is rejected.

Table 8: Intensions to behavior hypothesis testing

Model	**Behavior**	
Intension	β	1.096
	t	25.308
	p	0.000

H8 postulates the construction of positive relationship between Norwegian consumers pro-environmental intension and green purchase behavior. Whereas green products purchase behavior was assigned as dependent variable and intension as independent. Based on the data derived from structural model (β=1.096, p-value=0.000, t-value=25.308) this hypothesis is accepted. This hypothesized relation is statistically significant. The standard effect of intension also signifies that intension turn out to the green purchase behavior of consumers. A lot of previous studies have been approved the strong relationship between intension and actual behavior(Ajzen, 1985) which is also statistically fit in our thesis paper. In our studies it denotes that Norwegian consumers desire to a make choice towards green products take into place.

To sum up, among nine hypotheses we have formulated only one hypothesis has been accepted with p-value of < 0.001 to our green purchase behavior.

Secondly, we have tested coefficient of determination(R^2) which measure the model's predictive accuracy. In a multiple regression model, the proportion of the total sample variation in the dependent variable that is explained by the independent variable(Wooldridge, 2016). R^2 is embraced by a variety of disciplines, scholars must rely on a "rough" rule of thumb regarding an acceptable R^2, with 0.75, 0.50, and 0.25 which stands for substantial, moderate and weak levels of predictive accuracy respectively(Hair et al., 2019). In our research model, we have four latent dependent variables, combined formed of ascribed responsibility and awareness of adverse consequences 0.994 coefficient determination on environmental attitude and same latent variables observed 0.769 coefficient determination on personal norms. Similarly, perceived environmental effectiveness, subjective norms, environmental attitude and personal norms jointly explained 1.122 of R^2 and finally the single dependent variable pro-environmental behavioral intention to green purchase behavior explained 1.205 of R^2.

Another one is the effect size (f-square), effect size of path model determined through calculating Cohen's f^2. In order to measure the impact, the effect size of each latent independent variable on latent dependent variables were observed. F^2 is used to explain the presence partially or full mediation. As a rule of thumb, values higher than 0.02, 0.15, and 0.35 depict small, medium and large f^2 effects sizes(Hair et al., 2019). The effect of one exogenous construct to another endogenous construct in terms of R^2 was measured. The effect sizes(f^2) computed through the following formula:

$$\text{Effect size(f2)} = \frac{\text{R-squared included} - \text{R-squared excluded}}{\text{R-squared included}}$$

(Wong, 2016)

Where,

R2 included= Value with latent independent variable

R2 excluded= value without latent independent variable

Based on this formula, we have calculated the effect size and the used of data generated through smart pls3, the table are presented on the Appendix 4. Also, as per data presented on table 6, majority of the effect size falls under small and medium effect except one higher impact with 0.2036 in personal norms to green purchase behavioral intention.

Lastly, the cross-validated redundancy(Q2), it was used for assessing inner model predictive relevance or Q^2 measures the predictive accuracy in the PLS path models. Each independent variable was examined through blindfolding procedure on smartPLS3. Based on the results produced by SmartPLS 3, the predictive relevance of dependent variable green purchase behavior, pro-environmental behavioral intention, environmental attitude and personal norms were 0.312, 0.479, 0.187 and 0.317 respectively. As a rule of thumb, Q^2 values higher than 0, 0.25 and 0.50 depict small, medium and large predictive relevance of the PLS-path model(Hair et al., 2019). It means, we had one medium predictive relevance and three larger predictive relevance. Similar with the effect size f^2, where each independent variable predictive relevance on latent dependent variables were examined by taking out each independent variable in each term. The result was presented in the appendix 6. Predictive relevance based on table 6, each independent variable had predictive relevance greater than 0, but environmental attitude with pro-environmental behavioral intention had exactly 0 predictive relevance which showed small predictive relevance. The following formula was used to compute predictive relevance(q2):

$$\text{Predictive relevance(q2)} = \frac{\text{Q-square included} - \text{Q-square excluded}}{\text{Q-square included}}$$

Where;

Q-square included: Q-square including with all latent independent variables

Q-square excluded: Q-square excluding with each latent independent variable in each respective term

CHAPTER 6: Discussion and Conclusion

This chapter will make a conclusion about the results and whole scenario of this thesis research. The purpose of this study is to identify how individual intensions to buy green products can be determined by pro-environmental phenomenon. Numerous theories are available to measure this relation where we used two of the most widely used model as a unified model, Theory of planned behavior and value-beliefs norm for our conceptual framework in the literature review section.

In order to identify the significant variables of intension to buy green products in the context of Norwegian consumer we have developed following research questions: How the green purchase behavior of Norwegian consumers is determined by the environmentally oriented intension? and for the statistical verification of this relation 9 hypothesis have been developed replying on the planned behavior and value-beliefs norm theory. The Unified model of these two theories is proposed and Based on the proposed model a set of questionnaires have been developed and empirically tested among 206 respondents. Based on the data derived from analysis multiple insights about the pro-environmental intensions towards green products purchase behavior has been accounted. the research model showed the three different connection between the variables. The first connection is between the independent variables i.e. awareness of adverse consequences of action and ascribed responsibility towards environment and dependent variables pro-environmental attitude and personal norms. The second relation characterized by the research model is between independent variables i.e. Attitude, subjective norms, perceived environmental effectiveness with the dependent variable, the intension. There was also third correlation between intension and green product purchase behavior.

With regards to answer the set research question, the google survey has been conducted. Where 206 Norwegian consumers from many different originality/nationalities has responded. All the analysis was derived from IBM SPSS and smartPLS3. In the analytical part, the number of previous research strongly stand for the positive correlation between the independent and dependent variables from the both TPB and VBN model(Ajzen, 1991a; Y.-S. Chen & Chang, 2012; J. I. M. De Groot & L. Steg, 2009; Paul C. Stern, 2000).we tested the 9 hypotheses where in the first and second part of relation between independent and dependent variables failed to support. However, the third part of proposed research model which stated the positive correlation between intensions and green product purchasing behavior and, in our case, it

makes sense and this hypothesized relation stand out. Which means the intension of Norwegian consumers propounded from environmental consciousness will result into the purchasing of green products.

With the objective to cover all the possible factors in studying pro-environmental intensions to determined actual green purchase behavior the unified model of TPB and VBN has used. Where TPB is more oriented towards external antecedents and VBN acknowledge for the individual moral obligation. Therefore, this assimilation of these two-model contributed to clearer picture of how intension can be derived and ended to the purchase of green products.

It is also crucial to examine the socio-demographic factors that might influence the tendency of consumer to determine their intensions and behavior. According to the D'Souza at al. (2007) there are socio-demographic differences in green products acceptance and consumption behavior. In our research we considered age, income, nationality and education as a social demographic factor. The empirical studies showed that, the green consumers in general are those with rise in income and high education level as compared to ordinary consumers who preferred conventional products (Kheiry & Nakhaei, 2012).to conclude, in our case, demographical characteristics significantly influence the intensions and behavior to buy green products.

Whereas in understanding the behavioral process of how the intension to buy green products come forth through the influences of pro-environmental motives, the unified model of TPB and VBN has used that explains both the external and internal antecedents of purchase intension and behavior. The behavior process is studied precisely in three different relation between the independent and dependent variables and these are concluded as follows:

First, considering the correlation between independent variables from VBN model, AC and AR with dependent variables PNs from same model and attitude from TPB. The empirical evidence strongly supported that AC and AR were the most decisive factors which upraise individual internal motivation and that guided the personal norms(M. F. Chen, 2015; Oreg & Katz-Gerro, 2006) and person's attitude (Bonnes et al., 2003; Paul C. Stern et al., 1995). Though, considering our research result, does not confirm these correlations, the data generated from analysis denied the significance of AR and AR influences in PNs. And attitude respectively.

Second, in contrast with considering the influence of attitude, subjective norms and perceived environmental effectiveness with respects to drive the individual's intensions to purchase green products based on the TPB theory, the findings from this paper were not proven the significant influence of attitude, subjective norms and pro-environmental effectiveness on the intensions. Correspondingly, addressed relationship between PNs and intensions by VBN model also failed to support this correlation by the data derived from analysis.

Third, finding set forth to the relationship between intensions and behavior that there is positive correlation. Which is strongly legitimated in our study.it means that Norwegian consumer with a positive intension about buying green hold higher possibilities that He/she will buy them.

CHAPTER 7: Contribution and Implication

Our study and findings can be the best impetus specially for marketers who are in the process of selling green products or also equally important for already existed green products marketers or seller. This report helps marketers to understand better regarding pro-environmental behavioral intentions and behavior, consumers level of understanding towards green products etc. Based on this report, marketers can analyze the new markets trends, can trace and track new consumers trend and preference towards green products, their attitude and intention towards the better and safe environment.

According to the result of our study, the first thing is to know about the consumers green knowledge, knowledge about the green products, the impact of their green choice to the environment. The knowledge create intention and intention leads to behavior. If they have positive intention towards green products and to the environment, they would be more positive to buy green products.

The findings of this study can be a better source for the governance of the countries in order to formulate nations policy towards eco-friendly products and inducing more and more consumers to buy green products and to be a green products consumer which helps to boost nations sustainable development goals towards better planet.

Similarly, the findings of this research paper can also be useful to theoretical knowledge for academic purpose in regards with consumer pro-environmental behavioral intention towards green products.

CHAPTER 8: Limitations and recommendations for future research

There are several limitations regarding our study which may give the opportunities or new way to do further research. First, our study was focused only within the Norwegian consumers, where Norwegian consumers means native Norwegian as well as people from different countries but currently residing in Norway were regarded as our target respondents. It means, the future study may focus respondents from different countries, rather than specific countries or people living in specific countries. Second, our study didn't consider about the impact of green products price, quality, viability on consumers intention and final purchase behavior. So, through several experiments, future study may focus on the impact of price, quality and viability on consumers purchase intention and final decisions. Third, the result of this study may only be relevant to a specific product for instance consumers household products whereas the future research may focus on several products as well as service sector, such as organic, appliances, product use in service industry etc.

Similarly, quantitative research has been done in order to show the relationship between different variables and to examine the reliability and validity of the data and overall research framework, but empirical research can be done for further details. Future research could be done in contextual research model on consumers pro-environmental behavioral intention and behavioral towards green products this is the reason why qualitative research is recommended for further research considering focus groups, in depths interviews with consumers etc.

Last but not the least, in depth study of the consumer intention and behavior, the future research may focus on segmentation on green products as well as study different age group of study in order to offer green products to the right target group. Also, apart from consumers awareness towards green products, the future study may focus on the influence of ecological consciousness in every step of buying process from need recognition, information search, evaluate the possible solutions, behavior and post purchase behavior.

The behavior of the consumers is different from one to another and not so easy to convince them. Each person may act differently in different situations and their intention and behavior is different indeed. So, still there are more ways to expand it and get more and more useful information from them.

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Appendices

Appendix 1: Survey Instrument

Green Purchase: The influence of Pro-environmental Behavioural intention on Consumer purchase decision.

Hello!

We are Master students at Nord University. This survey is designed to examine Norwegian consumer's awareness/knowledge of green products. Green product means "Green product or environmentally-friendly products defined as products that have a less negative impact on the environment during production, in terms of use and disposal compared to other products (with the same functionality, addressing the same need)" (European Commission, 2013).

Please complete this brief survey, your honest feedback is highly appreciated; it will take just a few minutes. Your information will be kept strictly confidential and will be used only for research purpose.

Thank You!

* Required

General Information

(Mark only one Oval)

1. **Which of the following best describes your present status?** * *Mark only one oval.*
   - ◯ Employed
   - ◯ Self-employed
   - ◯ Unemployed
   - ◯ Student
   - ◯ Other: _____

2. **Nationality** *
   _____

3. **Age** *
   Mark only one oval.
   - ◯ Below 24
   - ◯ 25-34
   - ◯ 35-44
   - ◯ 45 and Over

4. **Education** *

Mark only one oval.

- ◯ High school graduate
- ◯ Bachelor's degree
- ◯ Master's degree
- ◯ Professional Degree (Manager, Chefs, Kokk, Engineer, Nurse...)
- ◯ Other: _____

5. **Gender** *

Mark only one oval.

- ◯ Male
- ◯ Female
- ◯ Do not answer

In the next slide; Select one of the five numbers next to each statement.

1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Ascribed Responsibility

(Mark only one Oval)

1. **As a consumer I have a greater role in protecting the environment**
2. * *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

2. Solidarity and shared responsibility are need among people to protect the environment

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

3. I feel equally responsible for global warming

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

4. I feel buying green products is fulfilling my responsibility to the environment

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Awareness of Consequence

(Mark only one Oval)

5. Environmental protection means a better world for future generation

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

6. It is obvious that global warming is a real threat to the planet

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

7. The exhaustion of fossil energy sources (i.e. oil, coal, and natural gas) is a problem

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

8. Environmental protection enhances my quality of life

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

Perceived Environmental Effectiveness

(Mark only one Oval)

9. I am also the one who is concerned about environmental issues

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

10. I have a full control over buying green products

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

11. I have a freedom to choose green products whenever I buy

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

12. I called myself as a green product consumer

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

Subjective Norms

(Mark only one Oval)

13. Most of the people who are important to me think that I should buy green products

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

14. I feel that using green products is 'the right thing to do'/ righteous

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

15. I think buying green product is essential

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

16. I think buying green product is appropriate

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

Environmental Attitude

(Mark only one Oval)

17. Concern about the environment are exaggerated

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

18. I am aware that, buying green products will contribute positively to the environment

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

19. I often try to persuade others that the environment is important

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

20. It makes me sad to see natural environments destroyed.

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Personal Norms

(Mark only one Oval)

21. I feel legally liable to act in an environmentally friendly way

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

22. I feel guilty when I don't preserve the environment/planet

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

23. I feel an accountable to buy green products whenever possible

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

24. I feel I must do something to protect our environment for future generations

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Pro-environmental Intention

(Mark only one Oval)

25. I feel that, how my decisions may affect to the environment

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

26. I avoid buying product which are potentially unfavourable to the environment

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

27. I plan to buy green products in the future

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

28. My contribution to reduce global warming, I will buy green products

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

Green Purchase Behaviour

(Mark only one Oval)

29. I would recommend green products also to my family and friends.

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

30. I feel that, I am playing great role helping better environment when I buy green product

**Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

31. I want to buy green product again after my first purchase

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

32. I am very satisfied with the green products

* *Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

‘

Tusen Takk!!!

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Appendix 2: Fornell & Larcker 1981 Criteria of Convergent Reliability

Latent Constructs	AVE	Latent Constructs							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Ascribed Responsibility (**A**)	0.402	**0.634**							
Awareness of Adverse Consequences(**B**)	0.456	1.039	**0.675**						
Environmental Attitude(**C**)	0.222	1.232	1.104	**0.471**					
Green Purchase Behavior(**D**)	0.439	1.033	0.873	1.169	**0.663**				
Perceived Environmental Effectiveness(**E**)	0.285	0.904	0.702	1.199	0.950	**0.534**			
Personal Norms(**F**)	0.476	0.932	0.888	1.243	0.961	0.896	**0.690**		
Pro-Environmental Behavior Intention (**G**)	0.457	1.023	0.933	1.199	1.097	1.006	1.046	**0.676**	
Subjective Norms (**H**)	0.441	1.084	0.981	1.200	1.050	0.951	0.925	1.030	**0.664**

Note*: The diagonal axis represents the square root of average variance extracted (AVE) of each latent variables and off-diagonal represents the highest value than square root of correlation between latent variable

Appendix 3: Items Cross Loadings

	Ascribed Responsibility	Awareness of Adverse Consequences	Environmental Attitude	Green Purchase Behavior	Personal Norms	Preceived Environmental Effectiveness	Pro-Environmental Behavioral Intention	Subjective Norms
AC1	0.686	**0.617**	0.675	0.502	0.531	0.430	0.553	0.577
AC2	0.608	**0.578**	0.613	0.623	0.514	0.532	0.630	0.685
AC3	0.682	**0.721**	0.770	0.599	0.635	0.537	0.632	0.669
AC4	0.777	**0.767**	0.796	0.613	0.696	0.469	0.677	0.692
AR1	**0.576**	0.735	0.689	0.543	0.527	0.530	0.602	0.622
AR2	**0.671**	0.675	0.750	0.741	0.663	0.559	0.704	0.750
AR3	**0.646**	0.540	0.808	0.692	0.559	0.682	0.670	0.702
AR4	**0.638**	0.652	0.731	0.631	0.612	0.591	0.608	0.665
BE1	0.661	0.523	0.755	**0.636**	0.657	0.634	0.698	0.717
BE2	0.717	0.592	0.742	**0.726**	0.659	0.637	0.797	0.699
BE3	0.593	0.470	0.671	**0.585**	0.513	0.674	0.642	0.559
BE4	0.757	0.686	0.807	**0.693**	0.723	0.690	0.761	0.775
EA1	0.771	0.707	**0.659**	0.717	0.711	0.650	0.769	0.796
EA2	0.632	0.566	**0.558**	0.675	0.754	0.648	0.678	0.603
EA3	0.404	0.424	**0.293**	0.200	0.315	0.323	0.259	0.263

EA4	0.271	0.155	**0.236**	0.378	0.325	0.428	0.317	0.340
IN1	0.699	0.629	0.791	0.705	0.716	0.783	**0.665**	0.663
IN2	0.741	0.636	0.771	0.782	0.686	0.655	**0.691**	0.754
IN3	0.670	0.623	0.804	0.809	0.679	0.726	**0.702**	0.695
IN4	0.651	0.606	0.792	0.667	0.758	0.678	**0.645**	0.657
PEE1	0.433	0.242	0.457	0.437	0.389	**0.448**	0.471	0.463
PEE2	0.332	0.264	0.447	0.302	0.319	**0.321**	0.337	0.332
PEE3	0.550	0.371	0.678	0.705	0.564	**0.655**	0.688	0.639
PEE4	0.631	0.611	0.744	0.589	0.669	**0.639**	0.671	0.587
PN1	0.659	0.619	0.840	0.632	**0.676**	0.637	0.685	0.596
PN2	0.685	0.616	0.912	0.807	**0.748**	0.756	0.811	0.777
PN3	0.659	0.656	0.772	0.610	**0.681**	0.585	0.679	0.616
PN4	0.572	0.557	0.762	0.610	**0.652**	0.611	0.712	0.561
SN1	0.824	0.736	0.804	0.728	0.694	0.670	0.732	**0.714**
SN2	0.749	0.637	0.724	0.740	0.624	0.622	0.708	**0.691**
SN3	0.746	0.735	0.790	0.638	0.631	0.595	0.675	**0.658**
SN4	0.534	0.439	0.733	0.657	0.504	0.702	0.599	**0.585**

Appendix 4: Collinearity Statistics (variance inflation factor)

	A	B	C	D	E	F	G	H
Ascribed Responsibility (A)			-22.550			-22.550		
Awareness of Adverse Consequences (B)			-22.550			-22.550		
Environmental Attitude (C)							-2.142	
Green Purchase Behavior (D)								
Perceived Environmental Effectiveness (E)							19.901	
Personal Norms (F)							6.123	
Pro-Environmental Behavioral Intention (G)				1.00				
Subjective Norms (H)							16.214	

Note*:variance inflation factor(VIF), ideally the VIF values should be close to 3 and lower (Hair et al., 2019)

Appendix 5: Effect Size

Predictor	Endogenous variables	R^2 Included	R^2 excluded	Effective size (F^2)
Ascribed responsibility	Environmental attitude	0.614	0.505	0.2823834197
Ascribed responsibility	Personal norm	0.614	0.481	0.3445595855
Awareness of adverse consequences	Environmental attitude	0.555	0.575	-0.04494382022
Awareness of adverse consequences	Personal norm	0.555	0.501	0.1213483146
Perceived environmental effectiveness	Intension	0.779	0.758	0.09502262443
Subjective norm	Intension	0.779	0.752	0.1221719457
Environmental attitude	Intension	0.779	0.775	0.01809954751
Personal norm	Intension	0.779	0.734	0.2036199095

Appendix 5: Predictive Relevance

Predictor	Endogenous variables	Q^2 included	Q^2 excluded	Predictive relevance ($Q^{2)}$
Ascribed responsibility	Environmental attitude	0.211	0.174	0.04689480355
Ascribed responsibility	Personal norm	0.211	0.272	-0.0773130545
Awareness of adverse consequences	Environmental attitude	0.312	0.201	0.1613372093
Awareness of adverse consequences	Personal norm	0.312	0.283	0.04215116279
Perceived environmental effectiveness	Intension	0.430	0.419	0.01929824561
Subjective norm	Intension	0.430	0.416	0.02456140351
Environmental attitude	Intension	0.430	0.430	0
Personal norm	Intension	0.430	0.406	0.04210526316

Appendix 7: PLS path model (All the latent variables connected to get more accurate scores).