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A study on the determinants influencing the consumption of hybrid vehicles in Greece

A thesis submitted by

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Dedicated to my mother,
Athanasia

Abbreviations

This study uses the following abbreviations:

ATT	Attitude
AttTh	Attribution Theory
CV	Conditional Value
EC	Environmental Concern
EM	Extrinsic Motives
EmV	Emotional Value
EpV	Epistemic Value
GB	Green Beliefs
GW	Green-Washing
HVs	Hybrid Vehicles
IM	Intrinsic Motives
IS	Information Seeking
MV	Monetary Value
PGN	Personal Green Norms
PI	Purchase Intention
PV	Performance Value
TCV	Theory of Consumption Values

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Stathis Mouzakis

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Abstract

This study aims to investigate the factors influencing the purchase of hybrid vehicles (HVs) in Greece from the attribution and the consumption value perspectives. Building on attribution theory and the theory of consumption values, we develop and test a theoretically anchored model that explains the determinants of HVs purchase. The study findings reveal that consumers' motives and perceptions exert a positive effect on their attitude and information seeking. In addition, the results show that while consumers' attitude exerts a positive effect on their purchase intention, information seeking and green-washing have no discernible effects. Furthermore, the findings indicate that environmental concern prompts consumers to seek more information about the HVs, and monetary and emotional values support purchase intention and actual hybrid purchasing behavior. In practice, the findings could provide sensible guidelines for making the marketing strategies and offer references for policy makers to enhance the operability and pertinence of current policies.

Keywords: Hybrid Vehicles, Attribution Theory, Theory of Consumption Values, Attitude, Information Seeking, Purchase Intention, Actual Hybrid Purchasing Behavior, Green-Washing, Environmental Concern.

1. Introduction

Nowadays, everything and everyone have the intention to go green. Green products are virtually everywhere: green energy, green technology, green transports, green architecture, green buildings, green government, green commerce, green investing, green fashion, green fabrics, green packaging, green light bulbs, green holidays, and so on (Leonidou & Skarmeas, 2015).

Carbon emissions generated from transport sector is a major source of total carbon emissions (Sang & Bekhet, 2015). The report of the International Energy Agency (2009) suggested that transport sector contributed approximately 1/4 of the total worldwide greenhouse gas emissions, and has been predicted to increase from 23% to 50% by 2030. There is no doubt that decarbonizing the transport sector would be helpful in reducing carbon emissions and mitigating the high reliance on fossil fuels (Larson, Viáfara, Parsons & Elias, 2014; Sang & Bekhet, 2015).

Energy-sustainable transport innovations, such as hybrid vehicles (HVs) and electric vehicles, have been regarded as substantive responses to reduce carbon emissions from the transport sector. In recent years, HVs are considered one of the most innovative products in the automotive industry. The first HV was Toyota Prius, and was introduced worldwide in 2000 (Bakker & Jacob Trip, 2013; Sierzchula, 2014).

1.1. Hybrid Vehicles (HVs)

HVs use two or more sources of energy and/or two or more sources of power onboard the vehicle. The sources of energy can be a battery, a flywheel, etc. The sources of power can be an engine, a fuel cell, a battery, an ultracapacitor, etc. Depending on the vehicle configuration, two or more of these power or energy sources are used. HVs save energy and minimize pollution by combining an electric motor and an internal combustion engine in such a way that the most desirable characteristics of each can be utilized.

HVs are generally classified as series hybrids and parallel hybrids. In a series HV, the engine drives the generator, which, in turn, powers the electric motor. In a parallel HV, the engine and the electric motor are coupled to drive the vehicle. A series

hybrid vehicle can offer lower fuel consumption in a city driving cycle by making the internal combustion engine consistently operate at the highest efficiency point during frequent stops and starts. A parallel hybrid vehicle can have lower fuel consumption in the highway driving cycle, in which the internal combustion engine is at the highest efficient point while the vehicle is running at constant speed.

HVs are also divided into mild hybrids, power hybrids, and energy hybrids, according to the role performed by the engine and the electric motor and the mission that the system is designed to achieve. A plug-in hybrid vehicle can be a series or parallel hybrid, with the battery being charged onboard the vehicle and being externally charged by the utility grid, thus increasing the range when operating in pure electric mode (Walters, Husted & Rajashekara, 2001).

Compared with conventional vehicles, HVs have advantages in improving fuel efficiency and reducing carbon emissions. However, the public acceptance of this new eco-friendly vehicle is relatively insufficient, and consumers are suspicious of this new technology since they have minimal experience or knowledge (Zhang, Wang, Hao, Fan & Wei, 2013).

1.2. Theoretical Background

As green products become commonplace, an issue that has been taken into consideration by researches is the gap between the purchase intention for these products and the actual purchases of them, referred to as the intention-behavior gap. To better understand how to minimize this intention-behavior gap, research in marketing and social psychology has focused more on the drivers of green product purchase. Although factors related to the purchase of green products are studied extensively, an understanding of how green products influence consumer behavior at the consumption stage is limited (Carrington, Neville & Whitwell, 2014).

The current research on the purchase of HVs mainly originates from two scopes. The first scope regards HVs as green technology innovation products and is used from the consumer perspective to explore the effects of innovative personality, green values and beliefs, environmental attitude and responsibility, moral norms and other

cognitive and psychological factors on consumers' purchase intention. The other research scope is the focus on the attributes, particularly the instrumental attributes of HVs. The results indicate that instrumental attributes such as price, operation cost, comfortability, performance, pollution level, driving range, and convenience, have significant effects on consumers' attitude and acceptance. (Ozaki & Sevastyanova, 2011; Krupa, Rizzo, Eppstein, Brad Lanute, Gaalema, Lakkaraju & Warrender, 2014).

To the best of our knowledge, limited research has empirically investigated HVs purchase intention and actual purchasing behavior. Such a void leaves a significant gap between theoretical and empirical research to promote HVs. In this study, we attempt to fill this gap.

Furthermore, there are contributions in this research. Firstly, this research was conducted from the attribution and consumption values perspectives, combined with additional influences - values (constructs), such as green-washing and environmental concern, in order to investigate the determinants that influence the consumption of HVs in Greece. In other words, green components are considered necessary to be investigated in studies like the present. Additionally, the Theory of Consumption values was used to highlight its role as a moderator in the relationship between purchase intention and actual hybrid purchasing behavior.

Finally, the remainder of this study is organized as follows: Section 2 addresses the literature review and proposes the conceptual framework and hypotheses. Section 3 focuses on the research model, the data and the research method. Data analysis and the results are presented in Section 4. In Section 5, we conclude the research findings and note the implications and limitations of this study.

2. Literature Review

This section presents a review of the attribution theory, the theory of consumption values, and the literature focused on personal green norms, green beliefs, attitude, information seeking, green-washing, environmental concern and purchase intention, and develops hypotheses.

2.1. Attribution Theory

According to attribution theory, individuals have a natural inclination to create a sense of their environment by acting as naive psychologists (Heider, 1958). When confronted with certain events, individuals seek to determine their causes. Through the use of attributions, individuals attempt to (re)establish control over their lives and improve their ability to predict future events (Kelley, 1971; Thibaut & Walker, 1975). Attribution theory proposes that in answering "why" questions, individuals fundamentally recognize between internal (self) and external (outside of self) explanations, thereby deciding the locus of causality for an event (Allport, 1979/1954; Heider, 1958; Kelley, 1967).

Attribution theory was used to create a new approach to interpersonal influence which is widely recognized as a major determinant of consumer behavior (Calder & Burnkrant, 1977). The causes of behaviors have been partitioned into those internal to the individual and those external to him/her (internal causes have been alternatively labeled as personal and external as environmental). The internal-external division has been regarded as essential to attribution processes within the sense that the assignment of a cause as internal or external has been expected to distinguish it meaningfully so that clarification of the impact would promptly follow (Kruglanski, 1975).

2.1.1. Intrinsic Motives (IM)

Intrinsic motives refer to the causal inferences people make by observing the genuine, value-driven environmental disposition of a product (Parguel, Benoît-Moreau & Larceneux, 2011), and are positively received by consumers since they relate to their moral, ethical, and environmental beliefs (Ellen, Webb & Mohr, 2006;

Vlachos, Tsamakos, Vrechopoulos & Avramidis, 2008). Intrinsic motives denote a selfless, caring, and benevolent behavior that is synchronized with the overarching consumption philosophy to do good to society (Becker-Olsen, Cudmore & Hill, 2006; Du, Bhattacharya & Sen, 2007).

In our case, we assume that intrinsic motives influence consumers' attitude and information seeking before purchasing a hybrid vehicle, as an outcome of their efforts of doing good and fulfilling personal beliefs.

Hypothesis 1: Intrinsic motives are positively related to consumers' attitude.

Hypothesis 2: Intrinsic motives are positively related to consumers' information seeking.

2.1.2. Extrinsic Motives (EM)

Extrinsic motives refer to individuals' perceptions of a certain behavior engaged in social and self interest or profiteering and exploitation purposes (Ellen, Mohr & Webb 2000; Parguel et al., 2011).

On the one hand, the internal/external distinction was used to study attributions in light of human relationships, teams, and groups (Eberly, Holley, Johnson & Mitchell, 2011). On the other hand, extrinsic motives were used in studies in order to explain why consumers indicate that a firm's product does not truly care about the environment and performs in a misleading manner (Du et al., 2007; Vlachos et al., 2008). In both cases, extrinsic motives have the ultimate goal of increasing the actor's welfare (Parguel et al., 2011; Vlachos, Panagopoulos & Rapp, 2013).

In our case, we assume that extrinsic motives influence consumers' attitude and information seeking before purchasing a hybrid vehicle, when they participate in a social network in which environmental responsibility has an exceptional role, in order to improve their image or strengthen their relationships.

Hypothesis 3: Extrinsic motives are positively related to consumers' attitude.

Hypothesis 4: Extrinsic motives are positively related to consumers' information seeking.

2.1.3. Personal Green Norms (PGN)

Personal green norms are attached to the self-concept and experienced as sentiments of an ethical commitment to perform a certain behavior (Schwartz, 1973). Studies have shown that compliance with personal green norms is related to feelings of pride, while non-compliance with personal norms is associated with feelings of guilt (Onwezen, Antonides & Bartels, 2013). In an environmental context, studies have shown that people who feel an ethical commitment to secure the environment are more likely to purchase green products (Thøgersen & Ölander, 2006).

Additionally, information on whether environmental responsibility is pertinent should influence consumers' interpretation of behavior. When a consumer participates in a social network in which environmental responsibility and green products are the exceptions rather than the rule, he/she is likely to infer that the consumption of green products is acting in a unique, authentic way, making this practice seem more appealing (Vlachos, Epitropaki, Panagopoulos & Rapp, 2013). By contrast, in a social network in which most members behave in an environmentally responsible manner and green products are the norm rather than the exception, a consumer is likely to think that an emulation effect is taking place and that there is a lack of novelty and genuineness in the behavior of the consumers being observed (Parguel et al., 2011).

In this study, we assume that the degree to which consumers feel moral obligations before purchasing HVs is positively related to their attitude and to information they seek.

Hypothesis 5: Personal green norms are positively related to consumers' attitude.

Hypothesis 6: Personal green norms are positively related to consumers' information seeking.

2.1.4. Green Beliefs (GB)

In their study, De Groot & Steg (2007) argued that it is important to study beliefs about the environment because they may affect environmental attitudes and explain

variations among different target groups. Belief refers to the cognitive dimension and is different from attitude. Beliefs reflect the enduring perception and cognition of consumers. Change in attitude is strongly influenced by beliefs. However, *"a belief can change independently of an attitude"* (Fishbein & Raven, 1962).

Green beliefs refer to consumers' attitude towards green products. When consumers hold positive green beliefs, they are likely to judge that green products are an effort intended to address ethical and social issues. In any case, when consumers hold negative green beliefs, they might regard the product as focusing solely and narrowly (Du et al., 2007). Additionally, research that examined the impact of positive and negative information has found that negative information has a stronger effect than positive information (Sen & Bhattacharya, 2001).

In this study, we assume that consumers' green beliefs are positively related to their attitude and to information they seek.

Hypothesis 7: Green beliefs are positively related to consumers' attitude.

Hypothesis 8: Green beliefs are positively related to consumers' information seeking.

2.1.5. Attitude (ATT)

Attitude refers to a person's general feeling of (un)favorableness about some object or issue (Eagly & Chaiken, 1993). Theories such as the Theory of Planned Behavior and the Theory of Reasoned Action emphasize that consumers' attitude towards certain behavior have significant effects on the final purchase behavior (Ajzen, 1991). The more positive the consumers' attitude is, the more they are likely to perform a certain behavior (Beck & Ajzen, 1991). Accordingly, it can be postulated that consumers intend to purchase HVs when they have a positive attitude towards HVs. Thus, it is hypothesized that:

Hypothesis 9: Consumers' attitude towards HVs positively affects the HVs purchase intention.

2.1.6. Information Seeking (IS)

Information is a basic tool for judgment and helps consumers become informed before decision making (Schmidt & Spreng, 1996).

Information seeking refers to consumers' tendency to search for additional information related to the environmental attributes of green products (Dholakia, 2001). Even though companies try to inform consumers about the green nature of their products, environmental claims drop into the category of trustworthiness attributes, which consumers find difficult to discover not only before purchase but also after purchase and use (Atkinson, 2013). This problem is further complicated by repetitive cases of green-washing which mislead consumers about the environmental benefits of a product (Delmas & Burbano, 2011).

Additionally, information seeking is strongly linked with doubts in that answers can be obtained if more information, knowledge, and evidence are available (Oleson, Poehlmann, Yost, Lynch & Arkin, 2000). Thus, in our study we assume that consumers are likely to seek additional information about HVs environmental attributes and performance (e.g., read certifications, ask friends, access websites, and discussion groups) in an attempt to enhance their understanding before moving on to purchase.

Hypothesis 10: Consumers' information seeking about HVs positively affects the HVs purchase intention.

2.1.7. Purchase Intention (PI)

In their study, Chandon, Morwitz & Reinartz (2005) claimed that although intention is not always an accurate predictor of future behavior, consumers tend to follow their purchase intention.

Purchase intention is a combination of consumers' interest in buying a product and the possibility of buying and refers to consumer inclination to purchase a product (Yoo, Donthu & Lee, 2000). Consumers purchase a green product when they believe it offers the right product quality or features. Many studies report a strong relation between attitude and preference towards a product (Cases, Fournier, Dubois &

Tanner, 2010; Kim & Ko, 2012). Therefore, to measure purchase intention we assume that consumers' future behavior depends on their consumption attitude. This means that purchase intention is an attitudinal variable for measuring customers' future purchasing behavior (Kumar, Lee, & Kim, 2009; Poddar, Donthu, & Wei, 2009). Thus, it is hypothesized that:

Hypothesis 11: Consumers' purchase intention towards HVs positively affects their actual hybrid purchasing behavior.

2.2. Additional Influences

Additional influences, such as green-washing and environmental concern, are green components that were considered necessary to be investigated in our study. Specifically, they were used to highlight their role as moderators in the relationship between consumers' attitude, information seeking and purchase intention.

2.2.1. Green-Washing (GW)

The color of green usually represents environmentalism, environmental concern, and environmentally friendly products. The word green-washing originated as a marketing term in order to promote specific products or services (Dunlap & Jones, 2002).

Green-washing is used to describe the practice of companies over claiming the environmental functionality of their products that cannot be substantiated. Green-washing is broadly connected to clarify the dishonest and misleading claim of a company's products or services as being green, environmentally friendly, or sustainable, while they truly are not (Parguel et al., 2011).

Green-washing damages the market demand by confusing consumers and making them uncertain about purchasing green products and eventually makes them stop buying the green products again (Pomering & Johnson, 2009).

Turnbull, Leek & Ying (2000) defined consumer confusion as consumer failure to create a correct interpretation of different aspects of a product or service during the information seeking procedure. The situation where consumers are confused can be

provoked by too similar, too complex, too ambiguous, and too much of information about products or services.

In our study we assume that consumers' confusion creates misunderstanding or misinterpretation of the examined market and has a negative effect on their attitude, information seeking and purchase intention. Thus, it is hypothesized that:

Hypothesis 12: Green-washing negatively moderates the relationship between consumers' attitude and HVs purchase intention.

Hypothesis 13: Green-washing negatively moderates the relationship between consumers' information seeking and HVs purchase intention.

2.2.2. Environmental Concern (EC)

Environmental concern is considered to be a level indicator of people's awareness regarding the environmental deterioration and the solutions that can be provided for it or an indicator of people's readiness to involve individually into a greener direction (Dunlap & Jones, 2002). Concern for the environment requires a composition of actions and does not appear by any particular action (Weigel & Newman, 1976).

The increase in consumers' environmental concern is possible to lead to environmental sensitization and potentially greener environmental habits (Kilbourne & Pickett, 2008). Maloney & Ward (1973) claimed that *"the ecological crisis is a crisis of maladaptive behavior".* It is obvious that in order to protect the environment, consumers must completely adopt sustainable lifestyle choices.

The basic principle of environmental research is the consumers' environmental concern which is a major determinant of their environmental behavior (Fransson & Gärling, 1999) and their final purchase decision making (Zimmer, T. Stafford, & M. Stafford, 1994) since it amplifies green purchase intention and actual purchase behavior (Hartmann & Apaolaza-Ibáñez, 2012; D. Samarasinghe & R. Samarasinghe, 2013). Similar to this principle, we propose the following differentiated hypotheses in our study:

Hypothesis 14: Environmental Concern positively moderates the relationship between consumers' attitude and HVs purchase intention.

Hypothesis 15: Environmental Concern positively moderates the relationship between consumers' information seeking and HVs purchase intention.

2.3. The Theory of Consumption Values (TCV)

The Theory of Consumption Values is used to explain why consumers decide to purchase or not a specific product, why consumers choose one product type than another, and why consumers prefer a brand over another. Three fundamental propositions are axiomatic to the theory:

a) Consumer choice is a function of multiple consumption values,

b) The consumption values make differential contributions to any given choice situation, &

c) The consumption values are independent (Sheth, Newman & Gross, 1991).

Sheth et al., (1991) regarded consumer choice as a set of multiple value dimensions and divided the values into five dimensions: functional, social, emotional, epistemic, and conditional values.

In their study, Forsythe, Liu, Shannon & Gardner (2006) proposed two consumer values: functional values (performance value, monetary value, and convenience value), and non-functional values (emotional value, social value, and epistemic value). Forsythe et al., (2006) indicated that the values perceived by consumers have significant effects on their purchase intention. The better the product meets the users' needs and expectations, the greater the likelihood that the user will prefer that product.

Lin & Huang (2012) and Goncalves, Lourenco & Silva (2016) demonstrated that consumer values are valid in predicting green product purchases. In this study, we adopt Forsythe et al., (2006) functional value division into performance value and monetary value. Additionally, we use emotional, epistemic, and conditional values. We then investigate the effects of the consumption values on HVs purchase

intention and actual hybrid purchasing behavior. Social value is excluded from our study because it is overlapped by personal green norms and green beliefs.

2.3.1. Performance Value (PV)

HVs are transport devices for consumers. The consideration of vehicle performance plays an imperative part in the purchase decision-making process (Kang & Park, 2011). The performance attributes such as reliability, riding comfort, convenience of use, and driving range have a significant influence on the acceptance of HVs (Zhang et al., 2013). Consumers are more likely to focus on ‘‘performance” when they make purchase decisions. If the performance of HVs meets their needs, they intend to purchase.

In this study, we assume that if performance value meets consumers’ expectations, consumers have a more positive purchase intention towards HVs and then decide to purchase them, and we propose the following hypothesis:

Hypothesis 16: Performance value positively moderates the relationship between consumers’ purchase intention towards HVs and their actual hybrid purchasing behavior.

2.3.2. Monetary Value (MV)

The purchase price is an important factor in determining the acceptance of HVs (Lane & Potter, 2007). The price of HVs is essentially higher than conventional vehicles. To lower the price, financial motivating policies such as subsidizing consumers and exempting the purchase tax and the value-added tax should be implemented (Zhang et al., 2013). Consumers can obtain monetary value when they decide to purchase HVs.

In this study, we assume that if monetary value meets consumers’ expectations, consumers have a more positive purchase intention towards HVs and then decide to purchase them, and we propose the following hypothesis:

Hypothesis 17: Monetary value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior.

2.3.3. Emotional Value (EmV)

Emotional value emerges from the products' capacity to arouse consumers' sentiments or affective states (Sheth et al., 1991). The intention to satisfy psychological needs is one of the most important factors affecting consumers' preferences (Schulte, Hart & Van der Vorst, 2004). In their study, Ozaki & Sevastyanova (2011) claimed that the psychological needs may be the feelings of comfort, pleasure, or ease of driving. Additionally, consumers who are more environmentally concerned show a strong eagerness to reduce their carbon footprint and intend to drive green vehicles (Torgler & García-Valiñas, 2007). Thus, consumers can obtain emotional value when they decide to purchase HVs.

In this study, we assume that the environmentally friendly characteristics of HVs and the feelings of pleasure and comfort provided by the driving experience meet consumers' affective states. Furthermore, consumers have a more positive purchase intention towards HVs and then decide to purchase them, and we propose the following hypothesis:

Hypothesis 18: Emotional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior.

2.3.4. Epistemic Value (EpV)

Epistemic value relates to curiosity, novelty, or knowledge gained by using a new product or service (Sheth et al., 1991). It is reasonable to speculate that certain consumers may be attracted by new technology since technology can enrich their knowledge (Turrentine & Kurani, 2007).

In this study, we assume that the HVs are definitely a kind of innovation and the technical interest is a considerable trigger for their purchase so consumers have a

more positive purchase intention towards HVs and then decide to purchase them, and we propose the following hypothesis:

Hypothesis 19: Epistemic value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior.

2.3.5. Conditional Value (CV)

Conditional value is the perceived utility acquired from an alternative as the result of a specific situation or set of circumstances facing the decision maker (Sheth et al., 1991). Belk (1974) defined this specific situation as one in which all factors relate to particular times and places and do not rely on personal knowledge and stimulus attributes, which have demonstrable and systematic effects on current behavior. Situational variables refer to the circumstances surrounding individuals as they respond to stimuli pertinent to their needs and wants (Nicholls, Roslow, Dublish & Comer, 1996). When personal situations which are perceived as consumer situational variables, change, consumer purchase behavior may be affected (Laaksonen, 1993).

In this study, we assume that if conditional values meet consumers' expectations, consumers have a more positive purchase intention towards HVs and then decide to purchase them, and we propose the following hypothesis:

Hypothesis 20: Conditional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior.

3. Research Method and Data Collection

This section introduces the structure of the research framework and describes the processes of data collection and the analysis method. Based on the theoretical background and the literature review in Section 2, Figure 3.1 depicts the research framework and the hypotheses.

3.1. Research Framework and Hypotheses

Figure 1 presents the schematic representation of the research model of this study.

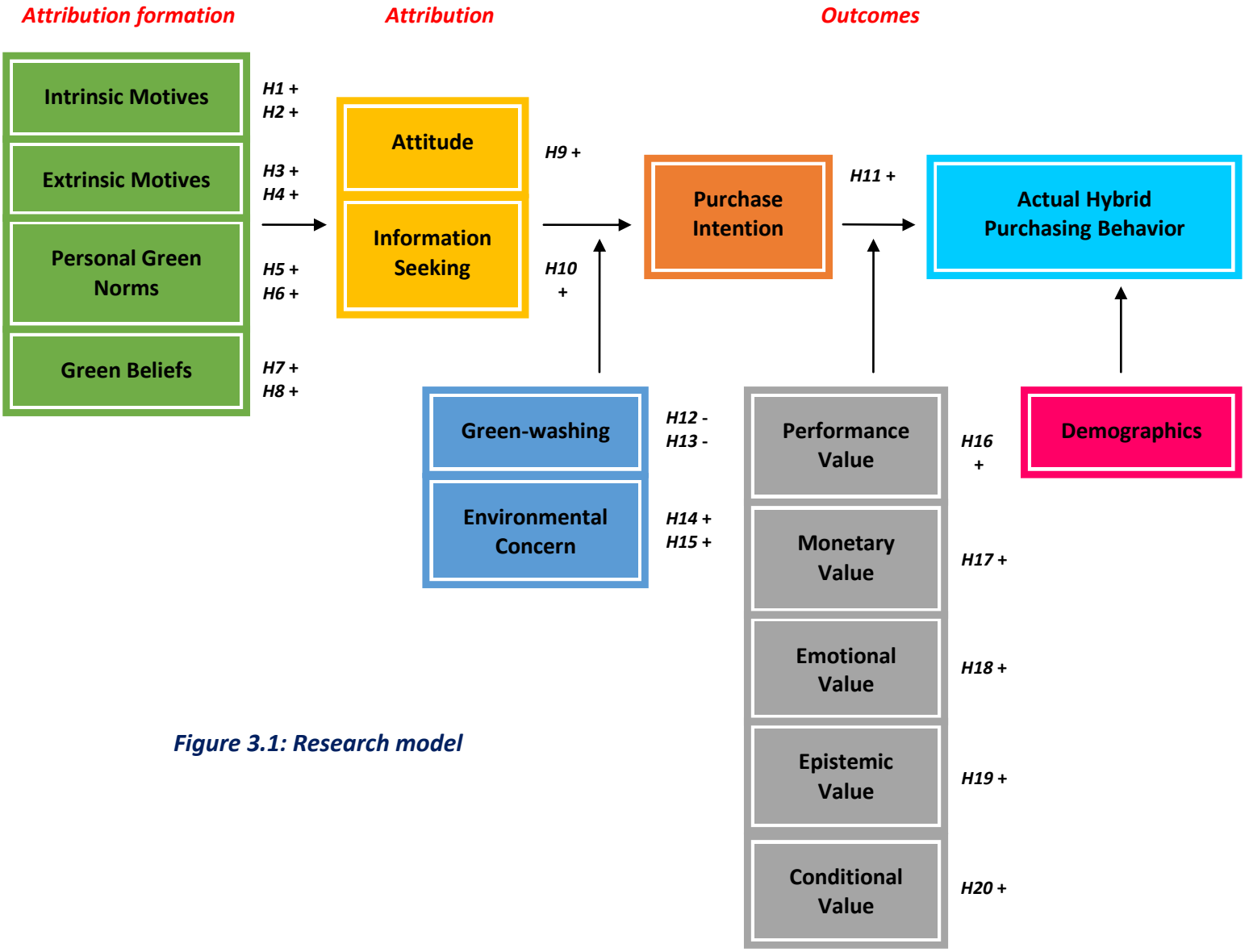


Figure 3.1: Research model

Table 3.1 contains in detail all the hypotheses of the research model.

Table 3.1: Hypotheses of the research model

H1	*Intrinsic motives are positively related to consumers' attitude*
H2	*Intrinsic motives are positively related to consumers' information seeking*
H3	*Extrinsic motives are positively related to consumers' attitude*
H4	*Extrinsic motives are positively related to consumers' information seeking*
H5	*Personal green norms are positively related to consumers' attitude*
H6	*Personal green norms are positively related to consumers' information seeking*
H7	*Green beliefs are positively related to consumers' attitude*
H8	*Green beliefs are positively related to consumers' information seeking*
H9	*Consumers' attitude towards HVs positively affects the HVs purchase intention*
H10	*Consumers' information seeking about HVs positively affects the HVs purchase intention*
H11	*Consumers' purchase intention towards HVs positively affects their actual hybrid purchasing behavior*
H12	*Green-washing negatively moderates the relationship between consumers' attitude and HVs purchase intention*
H13	*Green-washing negatively moderates the relationship between consumers' information seeking and HVs purchase intention*
H14	*Environmental Concern positively moderates the relationship between consumers' attitude and HVs purchase intention*
H15	*Environmental Concern positively moderates the relationship between consumers' information seeking and HVs purchase intention*
H16	*Performance value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*
H17	*Monetary value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*
H18	*Emotional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*
H19	*Epistemic value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*
H20	*Conditional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*

3.2. Questionnaire

To test the hypotheses, a questionnaire was designed and implemented. The questionnaire, excluding personal information, was composed of 73 statements in which respondents had to denote the level of agreement. Each statement response was measured by a seven-point Likert Scale (1=strongly disagree and 7=strongly agree). In detail, the questionnaire included: 4 statements regarding intrinsic motives, 4 statements regarding extrinsic motives, 3 statements regarding personal green norms, 3 statements regarding green beliefs, 3 statements regarding

consumers' attitude, 4 statements regarding information seeking, 5 statements regarding green-washing, 20 statements regarding environmental concern, 4 statements regarding purchase intention, 4 statements regarding performance value, 4 statements regarding monetary value, 4 statements regarding emotional value, 4 statements regarding epistemic value, 4 statements regarding conditional value & 3 questions regarding actual hybrid purchasing behavior.

The questionnaire was written in English and translated into Greek. Before research conduct, the final questionnaire was pre-tested with 20 respondents to confirm its relevance, validity and reliability. The constructs and their measurement items, which were used in our survey questionnaire, are provided in the Appendix.

Table 3.2: Variable Explanation

Variable Explanation	
Groups of Variables	**Structure & operalisation of variables**
Intrinsic Motives construct	*Continuous Variable*
Extrinsic Motives construct	*Continuous Variable*
Personal Green Norms construct	*Continuous Variable*
Green Beliefs construct	*Continuous Variable*
Attitude construct	*Continuous Variable*
Information Seeking construct	*Continuous Variable*
Purchase Intention construct	*Continuous Variable*
Actual Hybrid Purchasing Behavior construct	*Continuous Variable*
Green-Washing construct	*Continuous Variable*
Environmental Concern construct	*Continuous Variable*
Performance Value construct	*Continuous Variable*
Monetary Value construct	*Continuous Variable*
Emotional Value construct	*Continuous Variable*
Epistemic Value construct	*Continuous Variable*
Conditional Value construct	*Continuous Variable*
Demographics:	*Categorical Variables*
Gender, Children, City of Residence, Driving License, Car Possession, Hybrid Car Category, Hybrid Car Knowledge	*Dichotomous Variables*
Age, Educational Attainment, Marital Status, Type of Work, Monthly Income	*Polychotomous Variables*

3.3. Sample

The data collection procedure lasted two months (March & April 2020) and was carried out with an e-questionnaire via Google-forms. Of the sample of 555 questionnaires, all 555 were valid, yielding a response rate of 100%. The sample size fulfills the standard confidence level of 95% with a margin error of 5%.

3.4. Descriptive Findings

For the statistical analysis of the questionnaire, IBM SPSS 24 was selected due to its ability to extensively analyze quantitative data. Respondents were required to be 18 years old or more to participate in our survey. The sample consisted of 555 respondents of which 70,8% were male and 29,2% were female. Among the 555 cases, all age levels were evenly represented. Regarding educational attainment, 53% were university-educated or had a degree of a Technical Educational Institution. In addition to this, 20% had a master's degree and 1,6% had a PhD. 94,6% of the respondents had a driving license and 84,3% owned a car. Only 9,2% of the respondents owned a hybrid vehicle and 65,4% were aware of hybrid car knowledge. Detailed demographic characteristics are presented in Table 3.3.

Table 3.3: Respondents' demographics

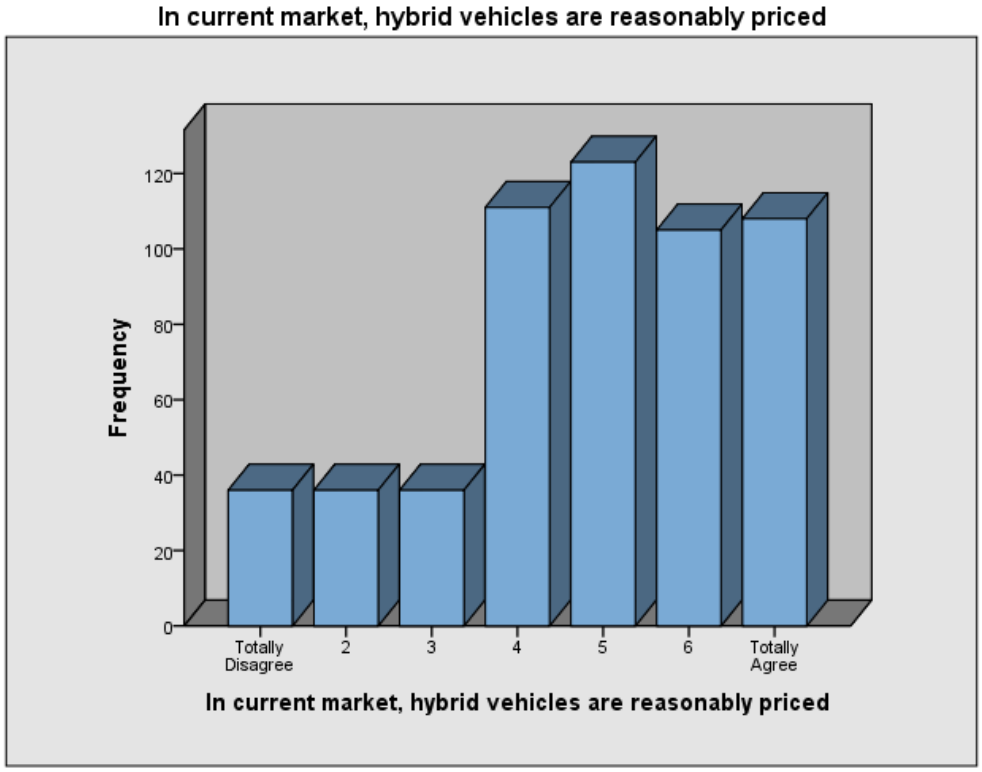
Demographics (N=555)		***Sample size***	***Percentage***
Gender	Male	393	70,8%
	Female	162	29,2%
Age	<20	9	1,6%
	20-29	114	20,5%
	30-39	216	38,9%
	40-49	114	20,5%
	50-59	87	15,7%
	>60	15	2,7%
Educational Attainment	Secondary Education	111	20,0%
	Institution for Vocational Training	30	5,4%
	University/Tech. Educational Institution	294	53,0%
	Master	111	20,0%
	PhD	9	1,6%
Marital Status	Single	300	54,1%

	Married	174	31,4%
	Divorced	69	12,4%
	Widow/er	12	2,2%
Children	Yes	225	40,5%
	No	330	59,5%
City of Residence	Within Attica	474	85,4%
	Outside Attica	81	14,6%
Type of Work	Civil Servant	111	20,0%
	Private Employee	243	43,8%
	Freelance	108	19,5%
	Retired	24	4,3%
	Student	45	8,1%
	Unemployed	24	4,3%
Monthly Income	<500,00 €	66	11,9%
	501,00-1.000,00 €	234	42,2%
	1.001,00-2.000,00 €	213	38,4%
	>2.000,00 €	42	7,6%
Driving License (category B)	Yes	525	94,6%
	No	30	5,4%
Car Possession	Yes	468	84,3%
	No	87	15,7%
Hybrid Car Category	Yes	51	9,2%
	No	504	90,8%
Hybrid Car Knowledge	Yes	363	65,4%
	No	192	34,6%

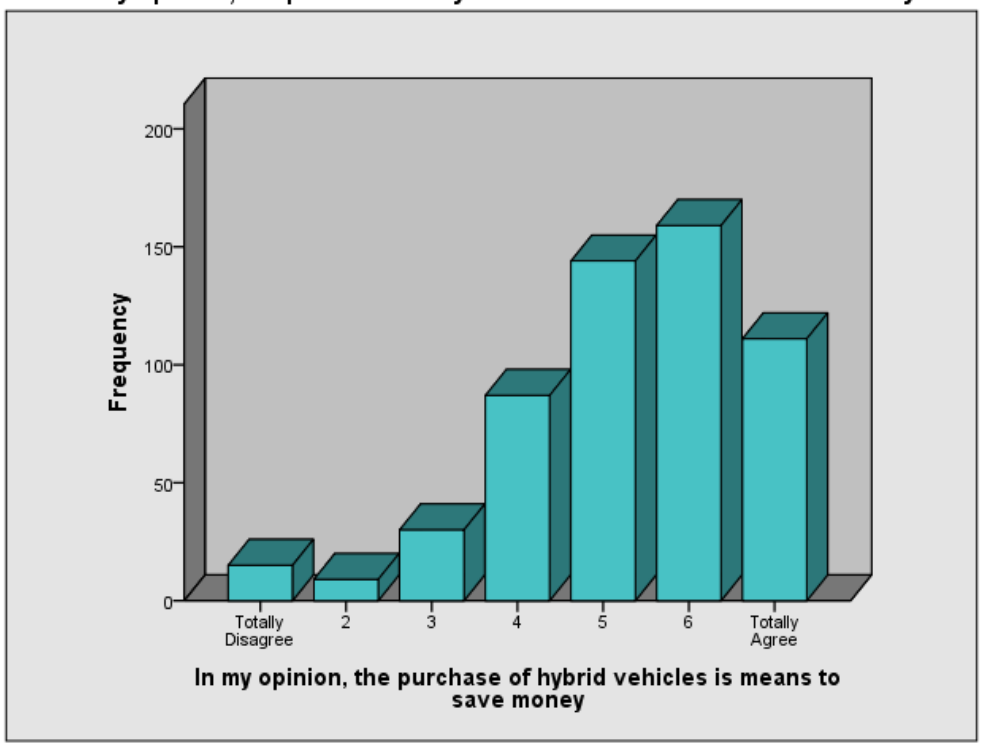
Price Opinions

By comparing two statements from our questionnaire, it is obvious that respondents' price opinions changed (Graphs 3.2 & 3.3). It turns out that consumers, who answered that HVs are not reasonably priced, find the purchase of HVs as a means to save money. This might be a result of information provided by friends or studies. In other words, the provided statement could be: *"If I owned a hybrid car, I would save money".*

Graph 3.2: In current market, HVs are reasonably priced



Graph 3.3: In my opinion, the purchase of HVs is means to save money



3.5. Crosstabulation and Frequency Findings

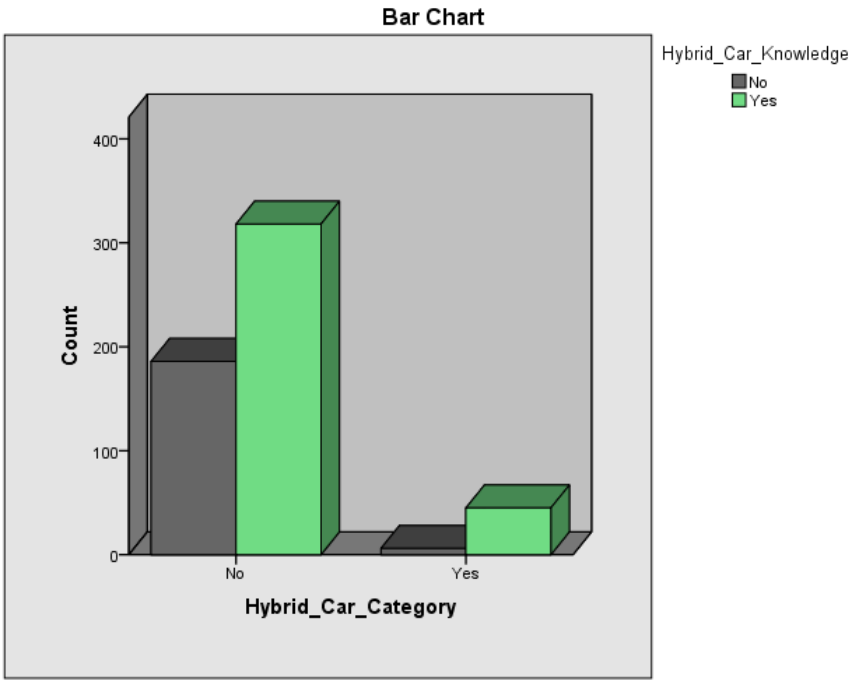
Crosstabulation #1: Hybrid Car Category * Hybrid Car Knowledge

From the crosstabulation process of hybrid car category & knowledge, we can conclude that 63,1% of the respondents who own a conventional car or do not own a car answered that they have knowledge of HVs, and 88,2% of the respondents who own a HV also answered that they have knowledge of HVs. Surprisingly, 11,8% of the respondents answered that they have purchased a HV without having knowledge of HVs.

Table 3.4: Hybrid Car Category * Hybrid Car Knowledge Crosstabulation

The results of Crosstabulation				
Hybrid Car Category*Hybrid Car Knowledge				
		Hybrid Car Knowledge		
Hybrid Car Category		**Yes**	**No**	**Total**
Yes	Count	45	6	51
	Percent	88,2%	11,8%	100,0%
No	Count	318	186	504
	Percent	63,1%	36,9%	100,0%
Total	Count	363	192	555
	Percent	65,4%	34,6%	100,0%

Graph 3.4: Hybrid Car Category * Hybrid Car Knowledge Crosstabulation



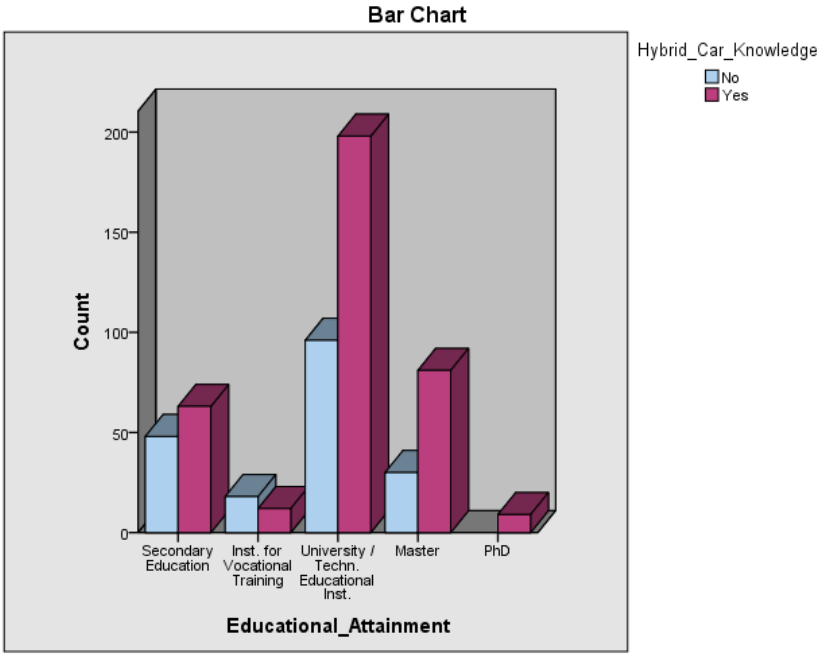
Crosstabulation #2: Educational Attainment * Hybrid Car Knowledge

From this crosstabulation process, we can conclude that from the 363 respondents who answered that they have knowledge of HVs, 79,3% had a University, Master's, or PhD degree. Additionally, 50% of the respondents who answered that they do not have knowledge of HVs had a University degree, and 15,6% had a Master's degree.

Table 3.5: Educational Attainment * Hybrid Car Knowledge Crosstabulation

The results of Crosstabulation				
Educational Attainment*Hybrid Car Knowledge				
		Hybrid Car Knowledge		
Educational Attainment		**Yes**	**No**	**Total**
Secondary Education	Count	63	48	111
	Percent	17,4%	25,0%	20,0%
Institution for Vocational Training	Count	12	18	30
	Percent	3,3%	9,4%	5,4%
University/Tech. Educational Institution	Count	198	96	294
	Percent	54,5%	50,0%	53,0%
Master	Count	81	30	111
	Percent	22,3%	15,6%	20,0%
PhD	Count	9	0	9
	Percent	2,5%	0,0%	1,6%
Total	Count	363	192	555
	Percent	100,0%	100,0%	100,0%

Graph 3.5: Educational Attainment * Hybrid Car Knowledge Crosstabulation



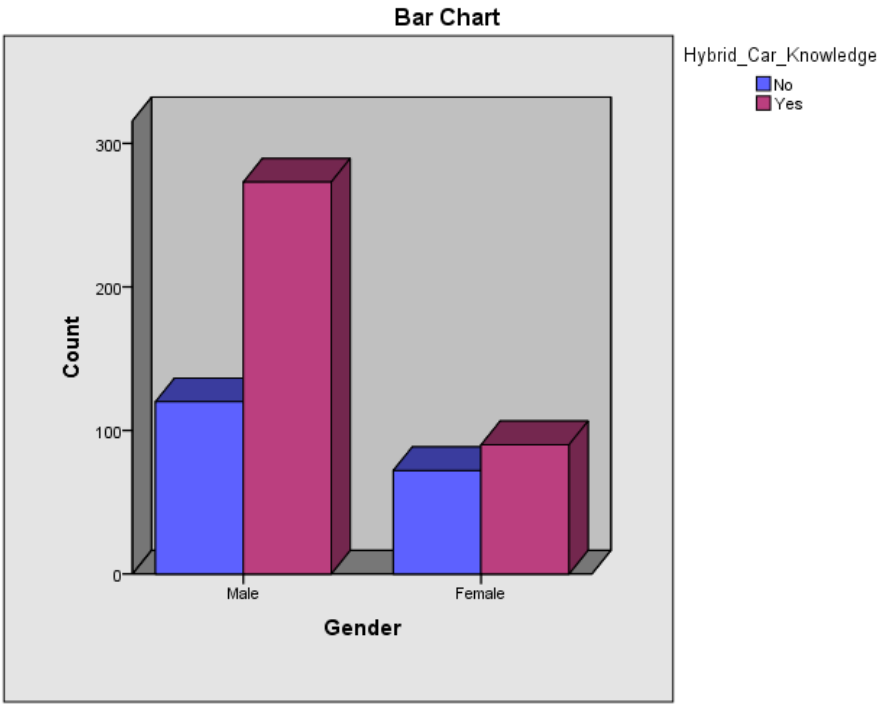
Crosstabulation #3: Gender * Hybrid Car Knowledge

From the crosstabulation process of gender & hybrid car knowledge, we can conclude that out of the 393 male respondents, 69,5% answered that they have knowledge of HVs. Additionally, 55,6% of the 192 female respondents answered that they have knowledge of HVs.

Table 3.6: Gender * Hybrid Car Knowledge Crosstabulation

The results of Crosstabulation				
Gender*Hybrid Car Knowledge				
		Hybrid Car Knowledge		
Gender		**Yes**	**No**	**Total**
Male	Count	273	120	393
	Percent	69,5%	30,5%	100,0%
Female	Count	90	72	162
	Percent	55,6%	44,4%	100,0%
Total	Count	363	192	555
	Percent	65,4%	34,6%	100,0%

Graph 3.6: Gender * Hybrid Car Knowledge Crosstabulation



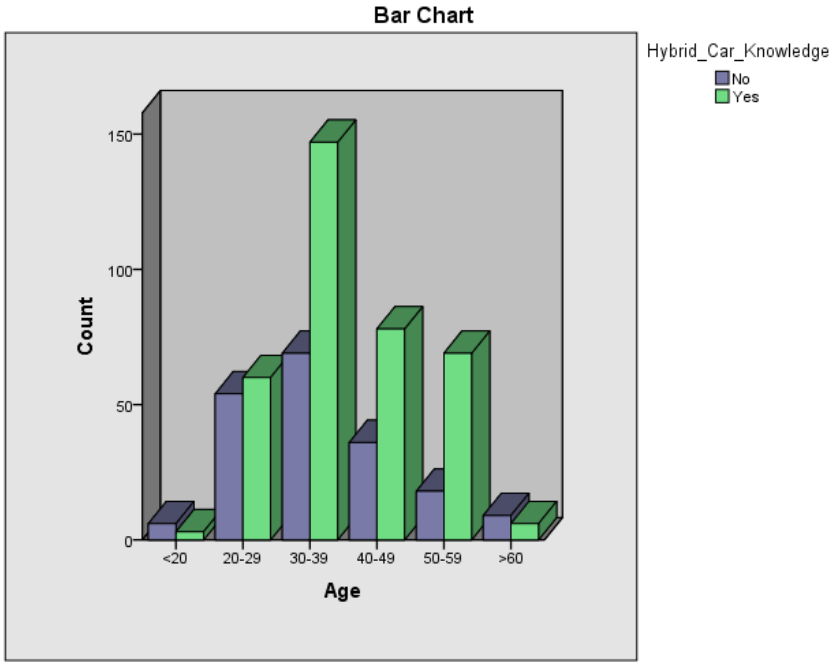
Crosstabulation #4: Age * Hybrid Car Knowledge

From the crosstabulation process of age & hybrid car knowledge, we can conclude that from the 363 respondents who answered that they have knowledge of HVs, 78,5% were between the ages of 20 and 49. The percentage of the same age group that answered that they do not have knowledge of HVs is 82,8%.

Table 3.7: Age * Hybrid Car Knowledge Crosstabulation

The results of Crosstabulation				
Age*Hybrid Car Knowledge				
		Hybrid Car Knowledge		
Age		**Yes**	**No**	**Total**
<20	Count	3	6	9
	Percent	0,8%	3,1%	1,7%
20-29	Count	60	54	114
	Percent	16,5%	28,1%	20,5%
30-39	Count	147	69	216
	Percent	40,5%	35,9%	38,9%
40-49	Count	78	36	114
	Percent	21,5%	18,8%	20,5%
50-59	Count	69	18	87
	Percent	19,0%	9,4%	15,7%
>60	Count	6	9	15
	Percent	1,7%	4,7%	2,7%
Total	Count	363	192	555
	Percent	100,0%	100,0%	100,0%

*Graph 3.7: Age * Hybrid Car Knowledge Crosstabulation*



Crosstabulation #5: Age * Hybrid Car Category

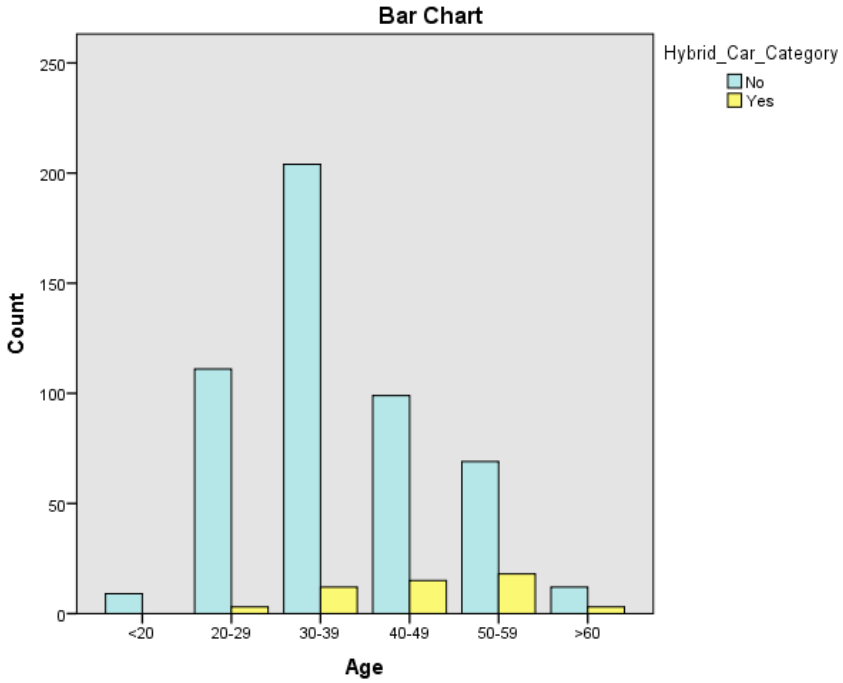
From this crosstabulation process, we can conclude that from the 51 respondents who answered that they own HVs, 23,5% were between the ages of 30 and 39, 29,4% were between the ages of 40 and 49, and 35,3% were between the ages of 50 and 59. In contrast, the percentages of the same age groups that do not own HVs were 40,5%, 19,6% and 13,7%, respectively.

*Table 3.8: Age * Hybrid Car Category Crosstabulation*

The results of Crosstabulation				
Age*Hybrid Car Category				
		Hybrid Car Category		
Age		**Yes**	**No**	**Total**
<20	Count	0	9	9
	Percent	0,0%	1,8%	1,7%
20-29	Count	3	111	114
	Percent	5,9%	22,0%	20,5%
30-39	Count	12	204	216
	Percent	23,5%	40,5%	38,9%
40-49	Count	15	99	114
	Percent	29,4%	19,6%	20,5%

50-59	Count	18	69	87
	Percent	35,3%	13,7%	15,7%
>60	Count	3	12	15
	Percent	5,9%	2,4%	2,7%
Total	Count	51	504	555
	Percent	100,0%	100,0%	100,0%

*Graph 3.8: Age * Hybrid Car Category Crosstabulation*



Crosstabulation #6: Monthly Income * Hybrid Car Category

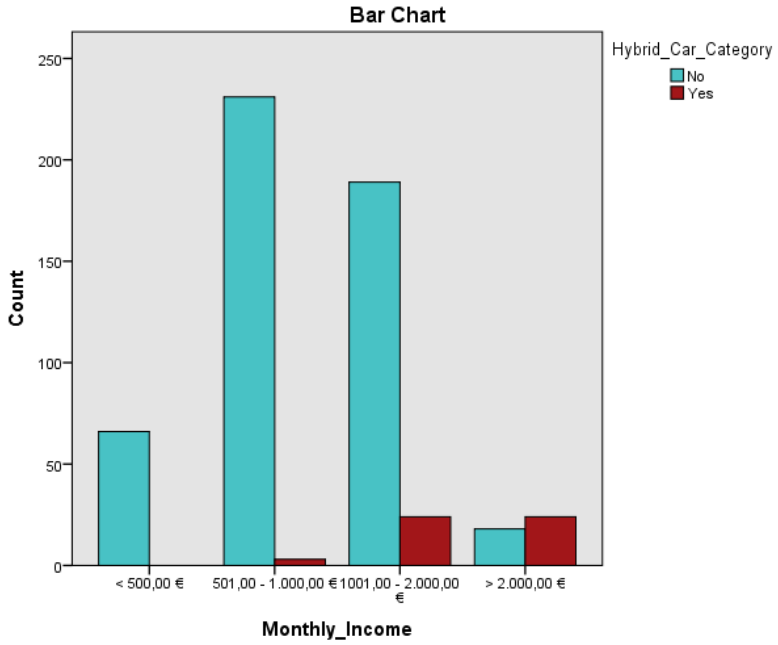
From the crosstabulation process of monthly income & hybrid car category, we can conclude that from the 51 respondents who answered that they own HVs, 47,1% had a monthly income higher than 1.001,00€, and also 47,1% of the respondents had a monthly income higher than 2.000,00€.

*Table 3.9: Monthly Income * Hybrid Car Category Crosstabulation*

The results of Crosstabulation				
Monthly Income*Hybrid Car Category				
		Hybrid Car Category		
Monthly Income		**Yes**	**No**	**Total**
<500,00 €	Count	0	66	66
	Percent	0,0%	13,1%	11,9%

501,00-1.000,00 €	Count	3	231	234
	Percent	5,9%	45,8%	42,2%
1.001,00-2.000,00 €	Count	24	189	213
	Percent	47,1%	37,5%	38,4%
>2.000,00 €	Count	24	18	42
	Percent	47,1%	3,6%	7,5%
Total	Count	51	504	555
	Percent	100,0%	100,0%	100,0%

Graph 3.9: Monthly Income * Hybrid Car Category Crosstabulation



Crosstabulation #7: Monthly Income * Hybrid Car Knowledge

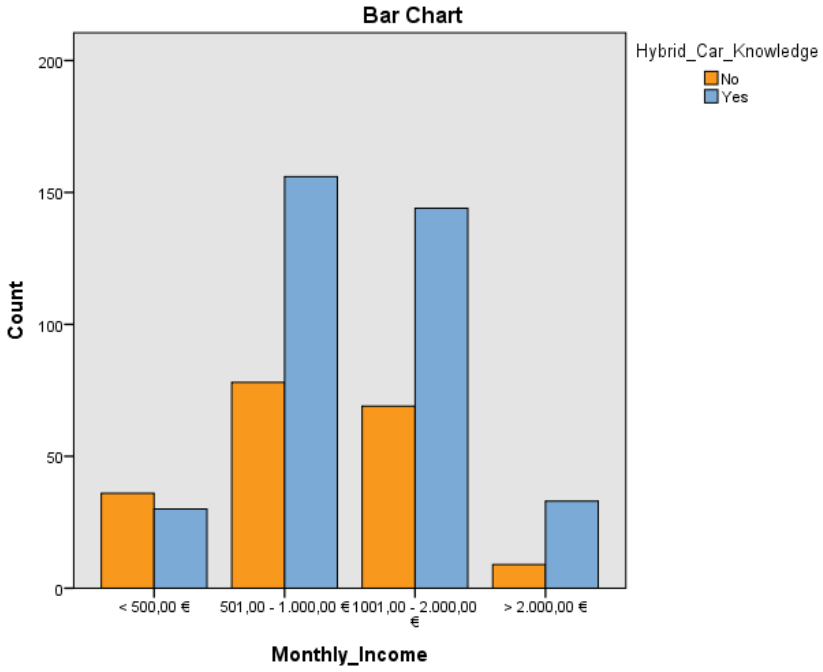
From the crosstabulation process of monthly income & hybrid car knowledge, we can conclude that from the 363 respondents who answered that they have knowledge of HVs, 43% had a monthly income between 501,00- 1.000,00€ and 39,7% of the respondents had a monthly income higher than 1.001,00€.

Table 3.10: Monthly Income * Hybrid Car Knowledge Crosstabulation

The results of Crosstabulation				
Monthly Income*Hybrid Car Knowledge				
		Hybrid Car Knowledge		
Monthly Income		**Yes**	**No**	**Total**
<500,00 €	Count	30	36	66

	Percent	8,3%	18,8%	11,9%
501,00-1.000,00 €	Count	156	78	234
	Percent	43,0%	40,6%	42,2%
1.001,00-2.000,00 €	Count	144	69	213
	Percent	39,7%	35,9%	38,4%
>2.000,00 €	Count	33	9	42
	Percent	9,1%	4,7%	7,6%
Total	Count	363	192	555
	Percent	100,0%	100,0%	100,0%

Graph 3.10: Monthly Income * Hybrid Car Knowledge Crosstabulation



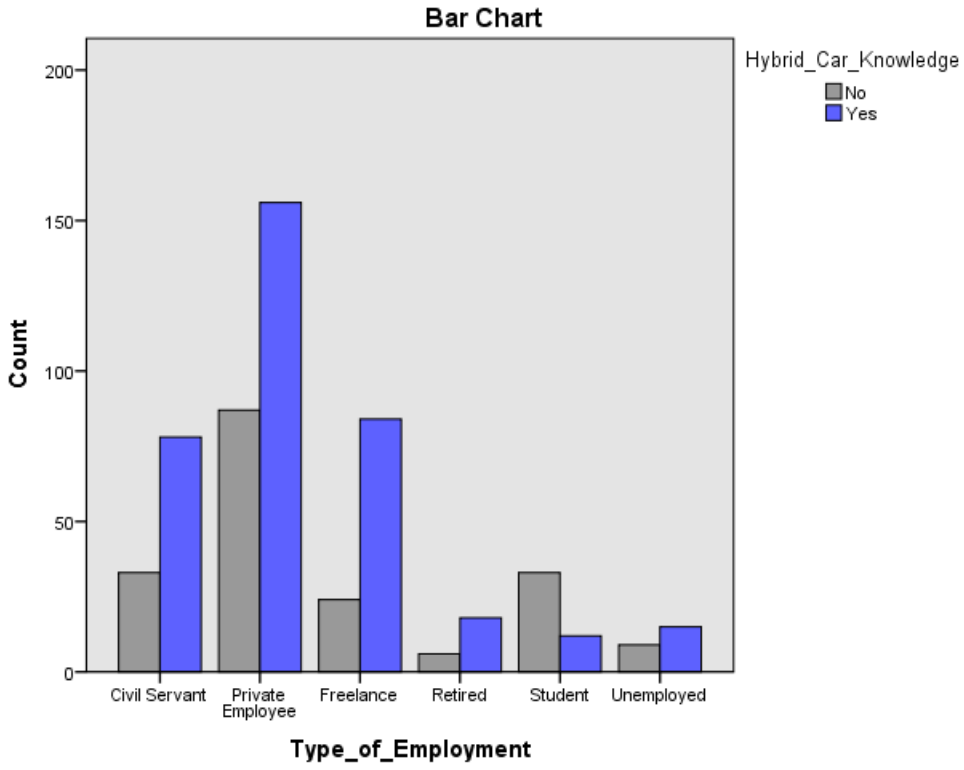
Crosstabulation #8: Type of Employment * Hybrid Car Knowledge

From this crosstabulation process, we can conclude that from the 363 respondents who answered that they have knowledge of HVs, 21,5% worked in the public sector and 43% worked in the private sector. Additionally, the percentages of the respondents who work in the public and private sector, and answered that they do not have knowledge of HVs, were 17,2% & 45,3%, respectively.

*Table 3.11: Type of Employment * Hybrid Car Knowledge Crosstabulation*

The results of Crosstabulation				
*Type of Employment*Hybrid Car Knowledge*				
		Hybrid Car Knowledge		
Type of Employment		Yes	No	Total
Civil Servant	Count	78	33	111
	Percent	21,5%	17,2%	20,0%
Private Employee	Count	156	87	243
	Percent	43,0%	45,3%	43,8%
Freelance	Count	84	24	108
	Percent	23,1%	12,5%	19,5%
Retired	Count	18	6	24
	Percent	5,0%	3,1%	4,3%
Student	Count	12	33	45
	Percent	3,3%	17,2%	8,1%
Unemployed	Count	15	9	24
	Percent	4,1%	4,7%	4,3%
Total	Count	363	192	555
	Percent	100,0%	100,0%	100,0%

*Graph 3.11: Type of Employment * Hybrid Car Knowledge Crosstabulation*



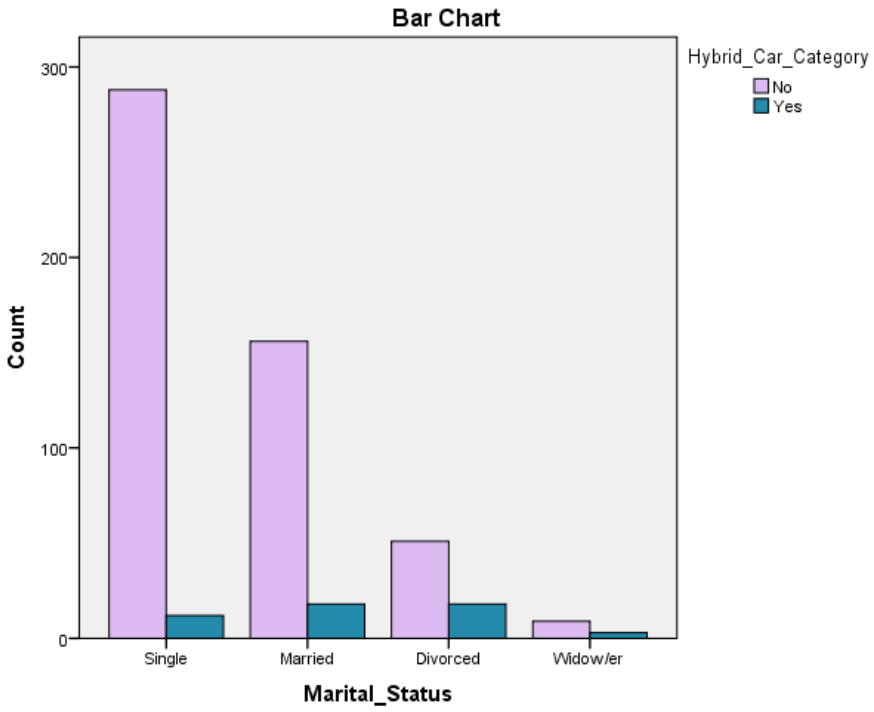
Crosstabulation #9: Marital Status * Hybrid Car Category

From the crosstabulation process of marital status & hybrid car category, we can conclude that from the 51 respondents who answered that they own HVs, 70,6% were married or divorced.

Table 3.12: Marital Status * Hybrid Car Category Crosstabulation

The results of Crosstabulation				
Marital Status*Hybrid Car Category				
		Hybrid Car Category		
Marital Status		**Yes**	**No**	**Total**
Single	Count	12	288	300
	Percent	23,5%	57,1%	54,1%
Married	Count	18	156	174
	Percent	35,3%	31,0%	31,4%
Divorced	Count	18	51	69
	Percent	35,3%	10,1%	12,4%
Widow/er	Count	3	9	12
	Percent	5,9%	1,8%	2,2%
Total	Count	51	504	555
	Percent	100,0%	100,0%	100,0%

Graph 3.12: Marital Status * Hybrid Car Category Crosstabulation



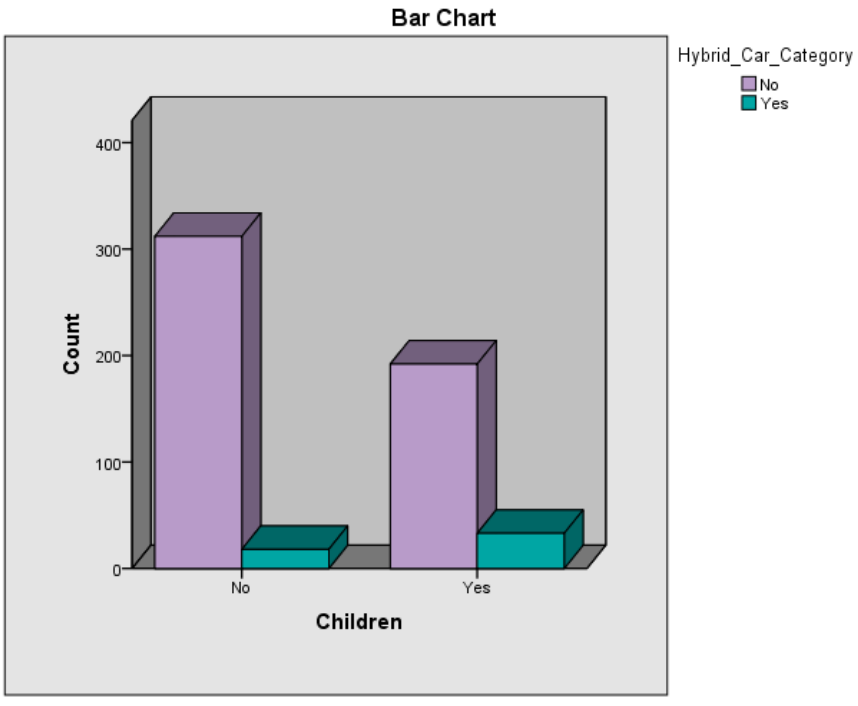
Crosstabulation #10: Children * Hybrid Car Category

In addition to the previous crosstabulation process, from this crosstabulation process of children and hybrid car category, we can conclude that from the 51 respondents who answered that they own HVs, 64,7% had children.

Table 3.13: Children * Hybrid Car Category Crosstabulation

The results of Crosstabulation				
Children*Hybrid Car Category				
		Hybrid Car Category		
Children		**Yes**	**No**	**Total**
Yes	Count	33	192	225
	Percent	64,7%	38,1%	40,5%
No	Count	18	312	330
	Percent	35,3%	61,9%	59,5%
Total	Count	51	504	555
	Percent	100,0%	100,0%	100,0%

Graph 3.13: Children * Hybrid Car Category Crosstabulation



The following crosstabulations are based on some of the respondents' characteristics in combination with some important statements which were included in the survey questionnaire.

Crosstabulation #11: People who belong to my social network consume environmentally friendly services and products * Hybrid Car Knowledge

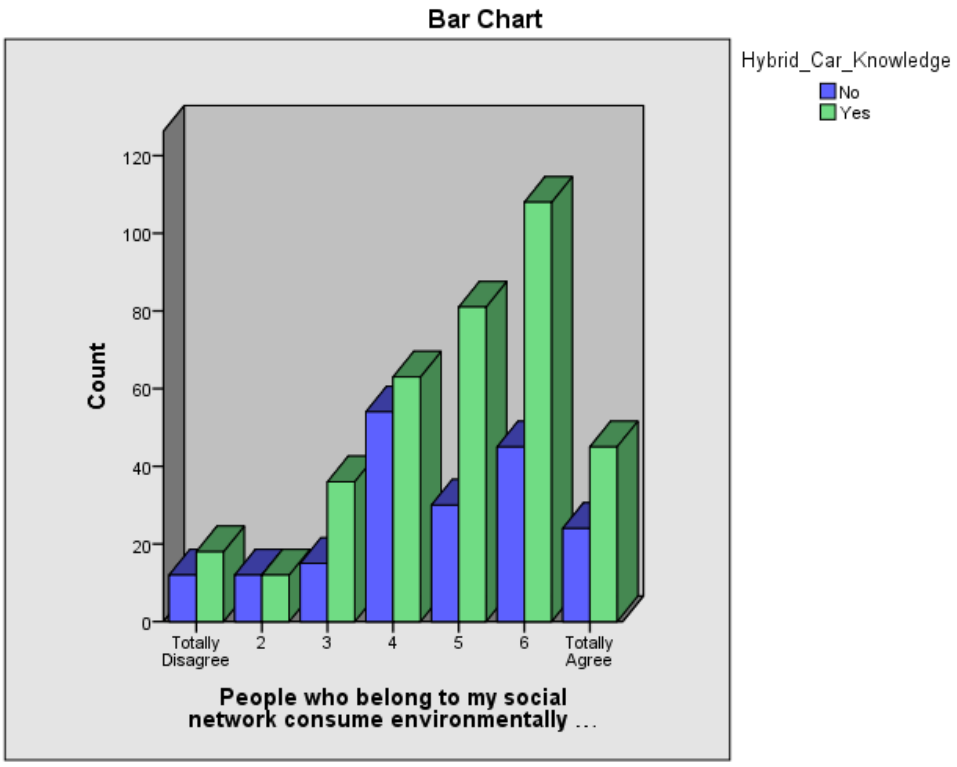
Statement: *''People who belong to my social network consume environmentally friendly services and products''*

It is impressive that 234 out of 363 respondents who answered that they have knowledge of HVs, that is 64,5%, agreed (simply, partially & totally) with the statement. Consequently, we can conclude that more than half of the respondents belonged to social networks that consume environmentally friendly services and products.

Table 3.14: People who belong to my social network consume environmentally friendly services and products * Hybrid Car Knowledge Crosstabulation

The results of Crosstabulation				
People who belong to my social network consume environmentally friendly services and products*Hybrid Car Knowledge				
		Hybrid Car Knowledge		
People who belong to my social network consume environmentally friendly services and products		**Yes**	**No**	**Total**
Totally Disagree	Count	18	12	30
	Percent	5,0%	6,3%	5,4%
2	Count	12	12	24
	Percent	3,3%	6,3%	4,3%
3	Count	36	15	51
	Percent	9,9%	7,8%	9,2%
Neutral	Count	63	54	117
	Percent	17,4%	28,1%	21,1%
5	Count	81	30	111
	Percent	22,3%	15,6%	20,0%
6	Count	108	45	153
	Percent	29,8%	23,4%	27,6%
Totally Agree	Count	45	24	69
	Percent	12,4%	12,5%	12,4%
Total	Count	363	192	555
	Percent	100,0%	100,0%	100,0%

Graph 3.14: People who belong to my social network consume environmentally friendly services and products * Hybrid Car Knowledge Crosstabulation



Crosstabulation #12: I would buy a hybrid vehicle primarily because I want to do the right thing for the environment * Educational Attainment

Statement: *''I would buy a hybrid vehicle primarily because I want to do the right thing for the environment''*

The willingness to buy a hybrid vehicle as the right thing for the environment was examined in this statement. 78,9% of the respondents agreed (simply, partially & totally) with this statement, while 14,1% remained neutral.

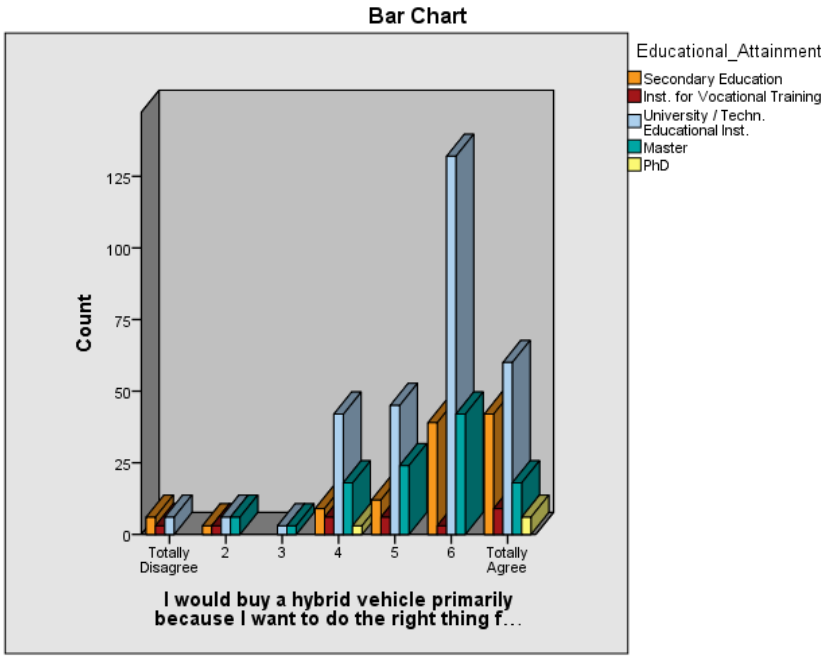
Furthermore, 53% of the respondents had a University degree. It is impressive that 237 out of these 294 respondents who had this degree, that is 80,6%, agreed (simply, partially & totally) with the statement, while 14,3% remained neutral.

Table 3.15: I would buy a hybrid vehicle primarily because I want to do the right thing for the environment * Educational Attainment Crosstabulation

The results of Crosstabulation
I would buy a hybrid vehicle primarily because I want to do the right thing for the environment*Educational Attainment

		Educational Attainment					
I would buy a hybrid vehicle primarily because I want to do the right thing for the environment		Secondary Education	Institution for Vocational Training	University/Tech. Educational Institution	Master	PhD	Total
Totally Disagree	Count	6	3	6	0	0	15
	Percent	5,4%	10,0%	2,0%	0,0%	0,0%	2,7%
2	Count	3	3	6	6	0	18
	Percent	2,7%	10,0%	2,0%	5,4%	0,0%	3,2%
3	Count	0	0	3	3	0	6
	Percent	0,0%	0,0%	1,0%	2,7%	0,0%	1,1%
Neutral	Count	9	6	42	18	3	78
	Percent	8,1%	20,0%	14,3%	16,2%	33,3%	14,1%
5	Count	12	6	45	24	0	87
	Percent	10,8%	20,0%	15,3%	21,6%	0,0%	15,7%
6	Count	39	3	132	42	0	216
	Percent	35,1%	10,0%	44,9%	37,8%	0,0%	38,9%
Totally Agree	Count	42	9	60	18	6	135
	Percent	37,8%	30,0%	20,4%	16,2%	66,7%	24,3%
Total	Count	111	30	294	111	9	555
	Percent	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Graph 3.15: I would buy a hybrid vehicle primarily because I want to do the right thing for the environment * Educational Attainment Crosstabulation



Crosstabulation #13: I am interested in hybrid vehicles* Gender

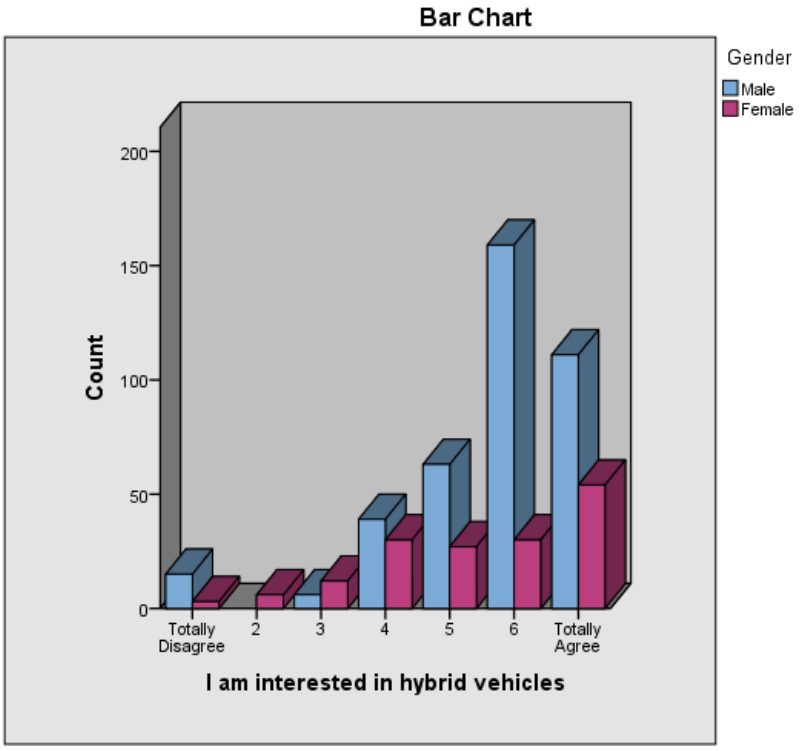
Statement: *''I am interested in hybrid vehicles''*

The interest in HVs among the gender was examined in this crosstabulation process. 444 out of the 555 respondents, that is 80%, agreed with the statement *"I am interested in HVs"* (simply, partially & totally), while 12,4% remained neutral. Specifically, 84,7% of the 393 male respondents and 68,5% of the 162 female respondents agreed with this statement.

Table 3.16: I am interested in hybrid vehicles * Gender Crosstabulation

The results of Crosstabulation				
I am interested in hybrid vehicles*Gender				
		Gender		
I am interested in hybrid vehicles		**Male**	**Female**	**Total**
Totally Disagree	Count	15	3	18
	Percent	3,8%	1,9%	3,2%
2	Count	0	6	6
	Percent	0,0%	3,7%	1,1%
3	Count	6	12	18
	Percent	1,5%	7,4%	3,2%
Neutral	Count	39	30	69
	Percent	9,9%	18,5%	12,4%
5	Count	63	27	90
	Percent	16,0%	16,7%	16,2%
6	Count	159	30	189
	Percent	40,5%	18,5%	34,1%
Totally Agree	Count	111	54	165
	Percent	28,2%	33,3%	29,7%
Total	Count	393	162	555
	Percent	100,0%	100,0%	100,0%

Graph 3.16: I am interested in hybrid vehicles * Gender Crosstabulation



Crosstabulation 14: I am interested in hybrid vehicles* Educational Attainment

Statement: *''I am interested in hybrid vehicles''*

The respondents' interest in HVs among their educational attainment is examined in this crosstabulation process. 444 out of the 555 respondents, that is 80%, agreed with the statement *"I am interested in HVs"* (simply, partially & totally), while 12,4% remained neutral.

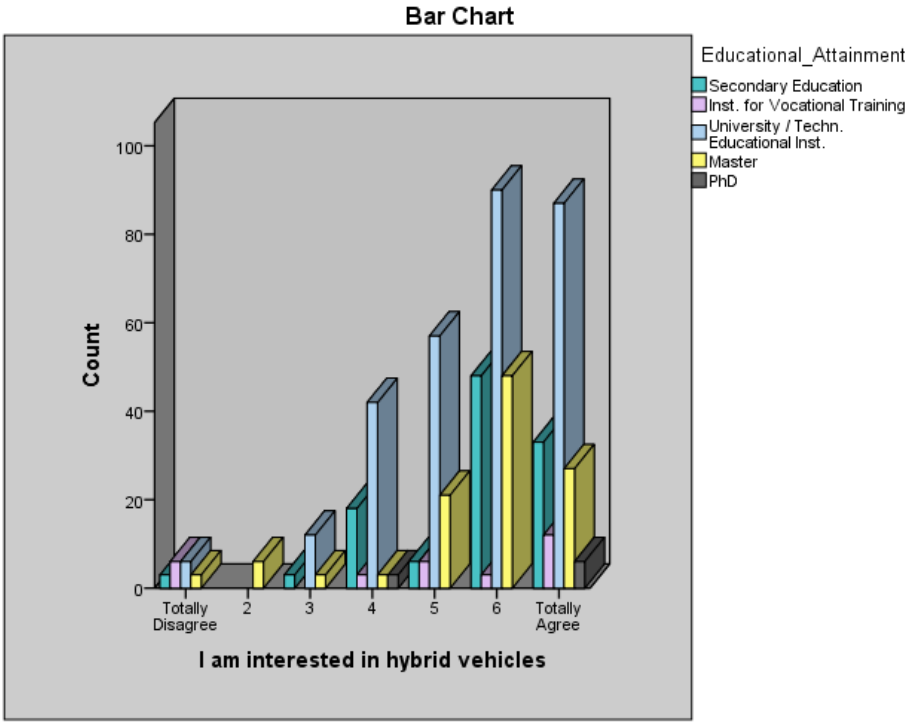
Furthermore, 414 out of the 555 respondents, that is 74,6%, had a University, Master's, or PhD degree. 336 out of these 414 respondents, that is 81,2%, agreed (simply, partially & totally) with this statement, while 11,6% remained neutral.

Table 3.17: I am interested in hybrid vehicles * Educational Attainment Crosstabulation

The results of Crosstabulation		
I am interested in hybrid vehicles*Educational Attainment		
		Educational Attainment

I am interested in hybrid vehicles		Secondary Education	Institution for Vocational Training	University/Tech. Educational Institution	Master	PhD	Total
Totally Disagree	Count	3	6	6	3	0	18
	Percent	2,7%	20,0%	2,0%	2,7%	0,0%	3,2%
2	Count	0	0	0	6	0	6
	Percent	0,0%	0,0%	0,0%	5,4%	0,0%	1,1%
3	Count	3	0	12	3	0	18
	Percent	2,7%	0,0%	4,1%	2,7%	0,0%	3,2%
Neutral	Count	18	3	42	3	3	69
	Percent	16,2%	10,0%	14,3%	2,7%	33,3%	12,4%
5	Count	6	6	57	21	0	90
	Percent	5,4%	20,0%	19,4%	18,9%	0,0%	16,2%
6	Count	48	3	90	48	0	189
	Percent	43,2%	10,0%	30,6%	43,2%	0,0%	34,1%
Totally Agree	Count	33	12	87	27	6	165
	Percent	29,7%	40,0%	29,6%	24,3%	66,7%	29,7%
Total	Count	111	30	294	111	9	555
	Percent	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Graph 3.17: I am interested in hybrid vehicles * Educational Attainment Crosstabulation



4. Data Analysis and Results

Before testing the hypotheses of this study, all the negatively stated variables were reversed. An exploratory principal component analysis with the 73 statements and varimax rotation was conducted in order to examine the pattern of relationships among them with the intention to produce a meaningful set of underlying factors. Principal axis factoring was used in order to estimate the factor loadings and variances of the model. The value of 0,793 of KMO measure of sampling adequacy indicates that patterns of correlations are relatively compact and so factor analysis yields distinct and reliable factors. Bartlett's measure test is highly significant ($p<0.001$), therefore there are some relationships between the variables.

Furthermore, reliability tests were conducted on each factor. Cronbach's Alpha varied from 0,741 to 0,966 for all constructs (Table 4.1). Therefore our questionnaire has an acceptable reliability. The mean of each construct was computed and the range was between 2,0851 and 5,9676 (Table 4.2).

Table 4.1: Reliability tests

Reliability tests	
Constructs	***Cronbach's alpha***
Intrinsic Motives	0,963
Extrinsic Motives	0,923
Personal Green Norms	0,899
Green Beliefs	0,797
Attitude	0,876
Information Seeking	0,741
Purchase Intention	0,910
Actual Hybrid Purchasing Behavior	0,916
Green-Washing	0,937
Environmental Concern	0,873
Performance Value	0,966
Monetary Value	0,927
Emotional Value	0,932
Epistemic Value	0,939
Conditional Value	0,878

Table 4.2: The mean of each construct

The mean of each construct	
Constructs	***Mean***
Intrinsic Motives	5,4743
Extrinsic Motives	2,0851
Personal Green Norms	4,9369
Green Beliefs	5,4288
Attitude	5,7658
Information Seeking	5,9676
Purchase Intention	5,6986
Actual Hybrid Purchasing Behavior	5,9387
Green-Washing	4,9741
Environmental Concern	5,8186
Performance Value	5,5270
Monetary Value	4,9919
Emotional Value	5,8027
Epistemic Value	5,4014
Conditional Value	5,7392

Multiple linear regression analyses were carried out in order to examine how much of the variance in the dependent variable can be explained by the independent variables and also to test hypotheses' statistical significance in terms of the model in each case. Furthermore, one-way ANOVA & Independent Samples t-test were deemed necessary for the analysis and for this reason they are presented below.

4.1. Control Variables

To rule out confounding explanations, we included a set of control variables. We controlled for *Gender, Children, City of Residence, Driving License, Car Possession, Hybrid Car Category and Hybrid Car Knowledge,* which are dichotomous variables, and for *Age, Educational Attainment, Marital Status, Type of Work and Monthly Income,* which are polychotomous variables.

4.2. Multiple Linear Regression Analysis

4.2.1. The effects of IM, EM, PGN & GB on ATT

A multiple linear regression analysis was performed with Attitude (ATT) as the dependent variable and with Intrinsic Motives (IM), Extrinsic Motives (EM), Personal

Green Norms (PGN) and Green Beliefs (GB) as the independent variables (Model 1). The results of the regression, the normality and the heteroscedasticity tests as well as the relevant graphs and comments are presented below.

Table 4.3: Model 1 Summary - ANOVA - Resid. Stat.

The results of multiple linear regression analysis					
Model 1 Summary			***ANOVA***		***Resid. Stat.***
R^2	**Adjusted R^2**	**Durbin-Watson**	**F**	**Sig.**	**Cook's Distance**
0,307	0,302	2,005	60,935	0,000	0,017

From Table 4.3, we notice that the Model 1 explains the 30,7% of the variance in the ATT variable which is a respectable result. It reaches statistical significance since F value in the ANOVA test is 60,935 and it is significant at the level of 0,001. The Durbin-Watson statistic is 2,005 which does not indicate autocorrelation. The Cook's Distance is 0,017, hence none of the cases has an undue influence on the results of the model.

Table 4.4: Coefficients

The results of multiple linear regression analysis			
Coefficients			
Dependent variable: Attitude (ATT)			
Independent Variables	**Standardized Coefficients**	**p-value**	**VIF**
Intrinsic Motives (IM)	0,426	0,000	1,832
Extrinsic Motives (EM)	0,143	0,000	1,021
Personal Green Norms (PGN)	-0,066	0,148	1,625
Green Beliefs (GB)	0,199	0,000	2,468

The output from multiple linear regression analysis indicates that IM make the strongest contribution to explaining the ATT. Additionally, EM and GB positively influence the respondent's ATT towards HVs. That is, if consumers attach higher IM, EM and GB, the possibility that they will affect their attitude towards HVs is higher, supporting H1, H3 and H7. Further discussion of our findings is provided in Section 5. Table 4.5 reports the results of Model 1 hypotheses.

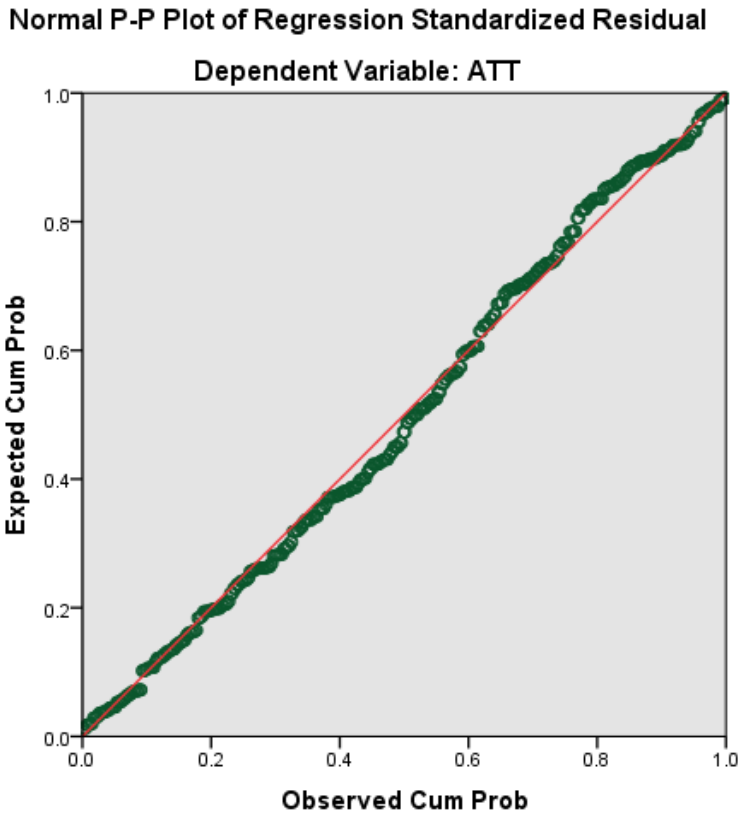
Table 4.5: The results of Model 1 Hypotheses

	Hypotheses	**Results**
H1	*Intrinsic motives are positively related to consumers' attitude*	***Supported***
H3	*Extrinsic motives are positively related to consumers' attitude*	***Supported***
H5	*Personal green norms are positively related to consumers' attitude*	***Not Supported***
H7	*Green beliefs are positively related to consumers' attitude*	***Supported***

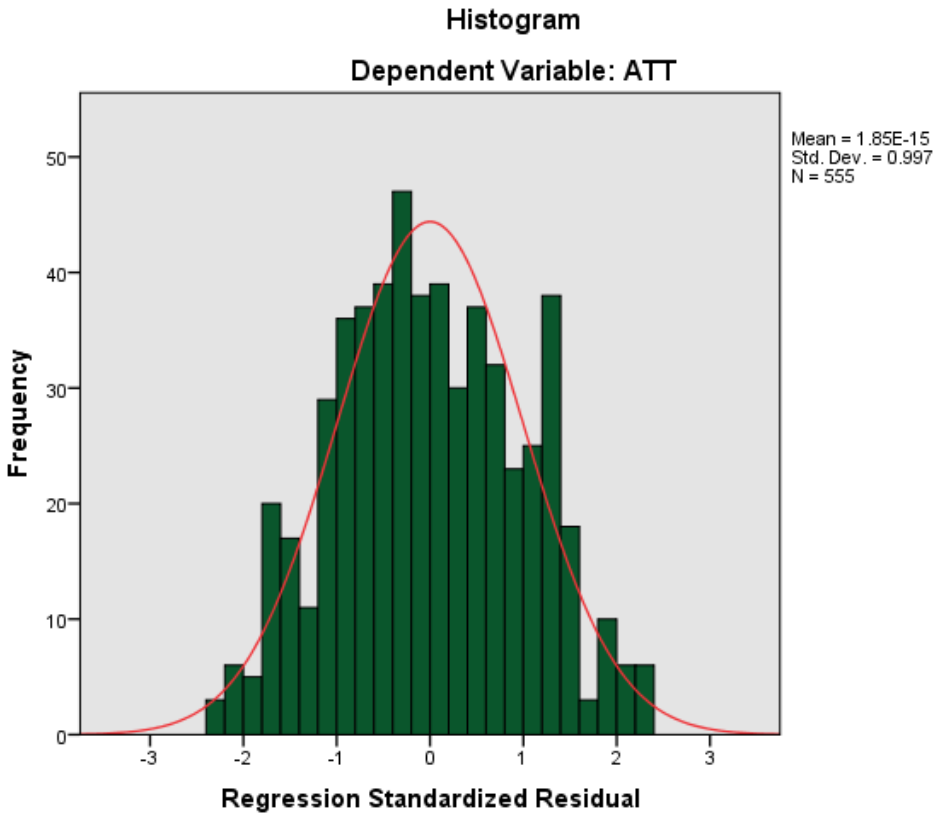
Furthermore, the VIF value (Table 4.4) for each independent variable is below the cutoff of 10, therefore the multicollinearity assumption is not violated.

In Model 1, in the Normal Probability Plot, the points lie in a reasonable straight diagonal line which means that there are no major deviations from normality. In the Scatterplot, the standardized residuals are rectangularly distributed, therefore no systematic pattern is obvious and the Histogram indicates that the residuals are normally distributed.

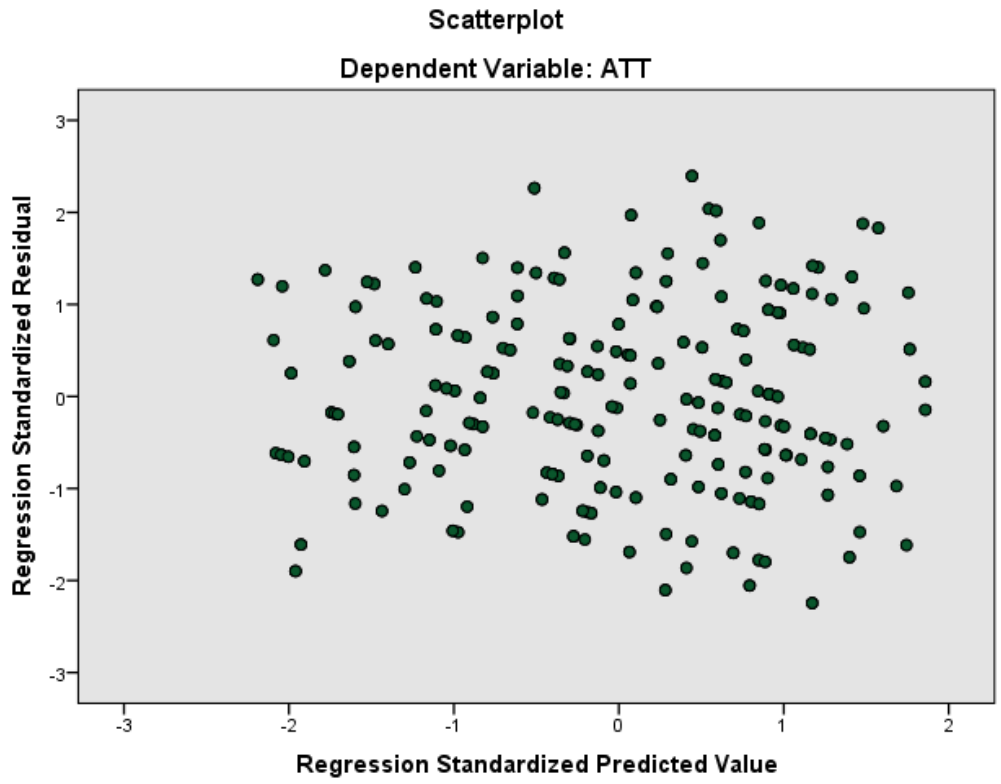
Graph 4.1: Normal P-P Plot - Observed Cum Prob



Graph 4.2: Histogram - Regression Standardized Residuals



Graph 4.3: Scatterplot - Regression Standardized Predicted Value



4.2.2. The effects of IM, EM, PGN & GB on IS

A multiple linear regression analysis was performed with Information Seeking (IS) as the dependent variable and with Intrinsic Motives (IM), Extrinsic Motives (EM), Personal Green Norms (PGN) and Green Beliefs (GB) as the independent variables (Model 2). The results of the regression, the normality and the heteroscedasticity tests as well as the relevant graphs and comments are presented below.

Table 4.6: Model 2 Summary - ANOVA - Resid. Stat.

The results of multiple linear regression analysis					
Model 2 Summary			*ANOVA*		*Resid. Stat.*
R^2	**Adjusted R^2**	**Durbin-Watson**	**F**	**Sig.**	**Cook's Distance**
0,424	0,420	2,043	101,361	0,000	0,025

From Table 4.6, we notice that the Model 2 explains the 42,4% of the variance in the IS variable which is a respectable result. It reaches statistical significance since F value in the ANOVA test is 101,361 and it is significant at the level of 0,001. The Durbin-Watson statistic is 2,043 which does not indicate autocorrelation. The Cook's Distance is 0,025, hence none of the cases has an undue influence on the results of the model.

Table 4.7: Coefficients

The results of multiple linear regression analysis			
Coefficients			
Dependent variable: Information Seeking (IS)			
Independent Variables	**Standardized Coefficients**	**p-value**	**VIF**
Intrinsic Motives (IM)	0,407	0,000	1,832
Extrinsic Motives (EM)	0,153	0,000	1,021
Personal Green Norms (PGN)	0,121	0,007	1,625
Green Beliefs (GB)	0,106	0,056	2,468

The output from multiple linear regression analysis indicates that IM make the strongest contribution to explaining the IS. Additionally, EM, PGN and GB (GB: marginally significant) positively influence the respondent's IS. That is, if consumers attach higher IM, EM, PGN and GB, the possibility that they will seek information

about HVs is higher, supporting H2, H4, H6 and H8. Further discussion of our findings is provided in Section 5. Table 4.8 reports the results of Model 2 hypotheses.

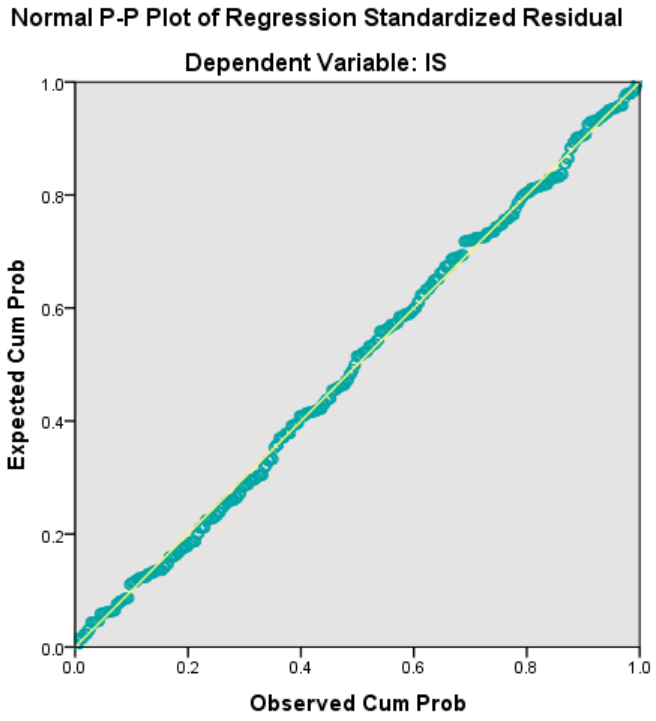
Table 4.8: The results of Model 2 Hypotheses

	Hypotheses	**Results**
H2	*Intrinsic motives are positively related to consumers' information seeking*	***Supported***
H4	*Extrinsic motives are positively related to consumers' information seeking*	***Supported***
H6	*Personal green norms are positively related to consumers' information seeking*	***Supported***
H8	*Green beliefs are positively related to consumers' information seeking*	***Supported***

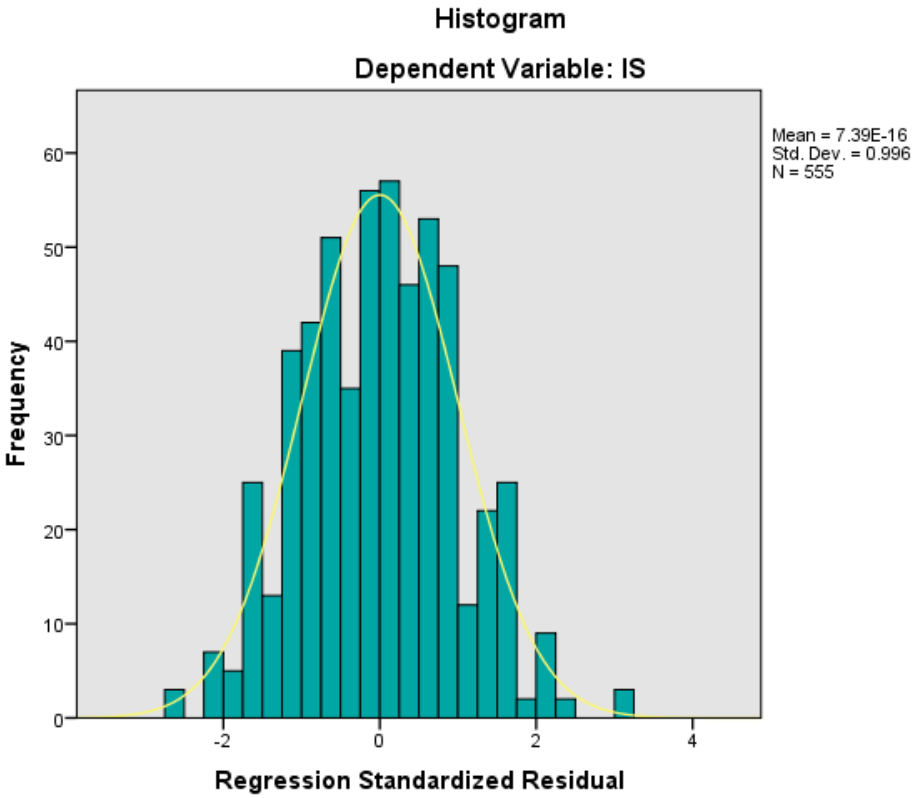
Furthermore, the VIF value for each independent variable is below the cutoff of 10, therefore the multicollinearity assumption is not violated.

In Model 2, in the Normal Probability Plot, the points lie in a reasonable straight diagonal line which means that there are no major deviations from normality. In the Scatterplot, the standardized residuals are rectangularly distributed, therefore no systematic pattern is obvious and the Histogram indicates that the residuals are normally distributed.

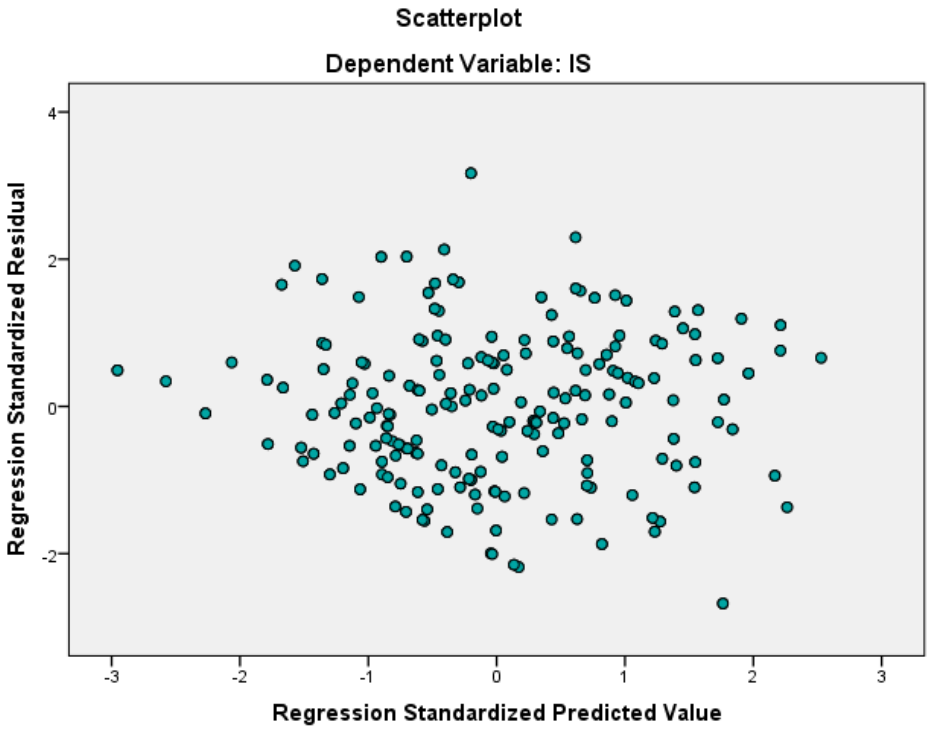
Graph 4.4: Normal P-P Plot - Observed Cum Prob



Graph 4.5: Histogram - Regression Standardized Residuals



Graph 4.6: Scatterplot - Regression Standardized Predicted Value



4.2.3. The effects of ATT, IS, GW & EC on PI

A multiple linear regression analysis was performed with Purchase Intention (PI) as the dependent variable and with Attitude (ATT), Information Seeking (IS), Green-washing (GW) and Environmental Concern (EC) as the independent variables (Model 3). The results of the regression, the normality and the heteroscedasticity tests as well as the relevant graphs and comments are presented below.

Table 4.9: Model 3 Summary - ANOVA - Resid. Stat.

The results of multiple linear regression analysis					
Model 3 Summary			***ANOVA***		***Resid. Stat.***
R^2	**Adjusted R^2**	**Durbin-Watson**	**F**	**Sig.**	**Cook's Distance**
0,498	0,493	2,083	90,673	0,000	0,108

From Table 4.9, we notice that the Model 3 explains the 49,8% of the variance in the PI variable which is a respectable result. It reaches statistical significance since F value in the ANOVA test is 90,673 and it is significant at the level of 0,001. The Durbin-Watson statistic is 2,083 which does not indicate autocorrelation. The Cook's Distance is 0,108, hence none of the cases has an undue influence on the results of the model.

Table 4.10: Coefficients

The results of multiple linear regression analysis			
Coefficients			
Dependent variable: Purchase Intention (PI)			
Independent Variables	**Standardized Coefficients**	**p-value**	**VIF**
Attitude (ATT)	2,227	0,000	2,971
Information Seeking (IS)	-0,751	0,095	2,473
Green-washing (GW)	0,363	0,029	3,424
Environmental Concern (EC)	0,557	0,003	3,395
GW*ATT	0,152	0,603	1,455
GW*IS	-0,528	0,110	2,083
EC*ATT	-2,626	0,000	2,282
EC*IS	1,697	0,003	2,476

The output from multiple linear regression analysis indicates that ATT makes the strongest contribution to explaining the PI. Additionally, EC positively moderates the respondent's IS about HVs and PI. That is, if consumers associate intensely ATT and EC while they seek for information, the intention that they will purchase HVs is higher, supporting H9 and H15. Further discussion of our findings is provided in Section 5. Table 4.11 reports the results of Model 3 hypotheses.

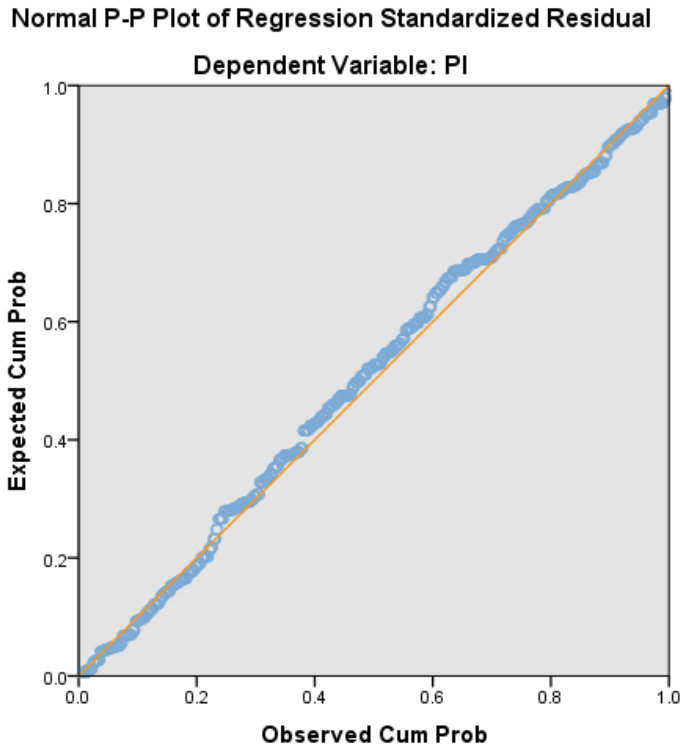
Table 4.11: The results of Model 3 Hypotheses

	Hypotheses	**Results**
H9	*Consumers' attitude towards HVs positively affects the HVs purchase intention*	***Supported***
H10	*Consumers' information seeking about HVs positively affects the HVs purchase intention*	***Not Supported***
H12	*Green-washing negatively moderates the relationship between consumers' attitude and HVs purchase intention*	***Not Supported***
H13	*Green-washing negatively moderates the relationship between consumers' information seeking and HVs purchase intention*	***Not Supported***
H14	*Environmental Concern positively moderates the relationship between consumers' attitude and HVs purchase intention*	***Not Supported***
H15	*Environmental Concern positively moderates the relationship between consumers' information seeking and HVs purchase intention*	***Supported***

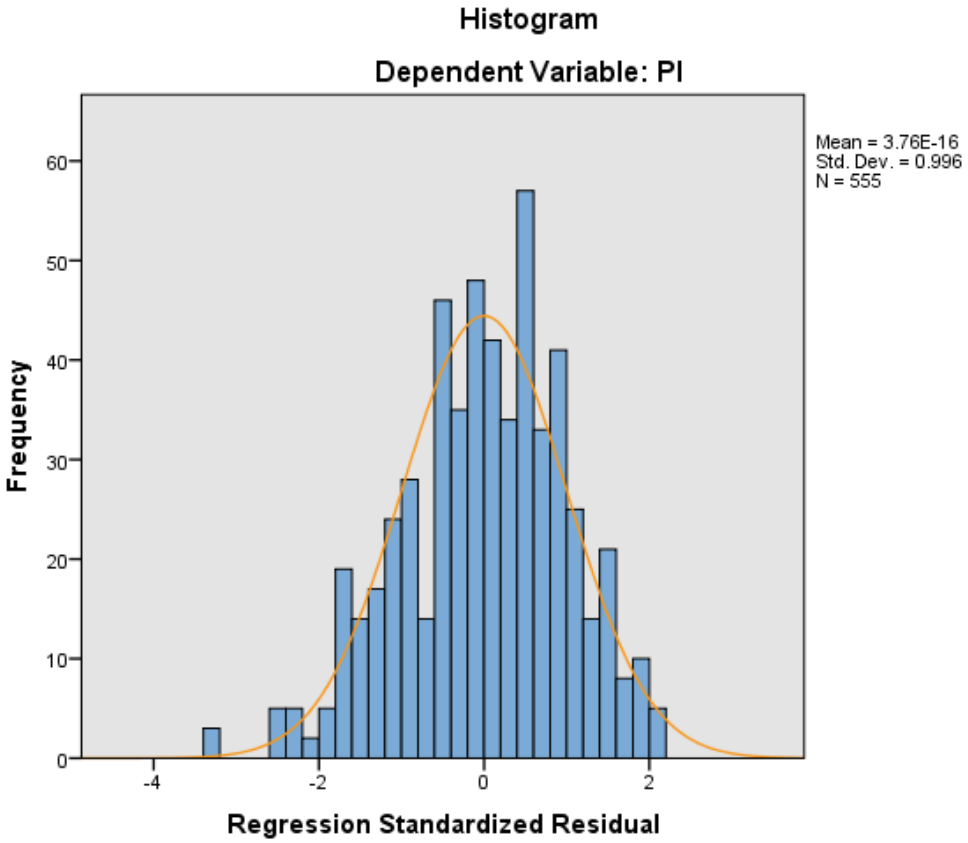
Furthermore, the VIF value for each independent variable is below the cutoff of 10, therefore the multicollinearity assumption is not violated.

In Model 3, in the Normal Probability Plot, the points lie in a reasonable straight diagonal line which means that there are no major deviations from normality. In the Scatterplot, the standardized residuals are rectangularly distributed, therefore no systematic pattern is obvious and the Histogram indicates that the residuals are normally distributed.

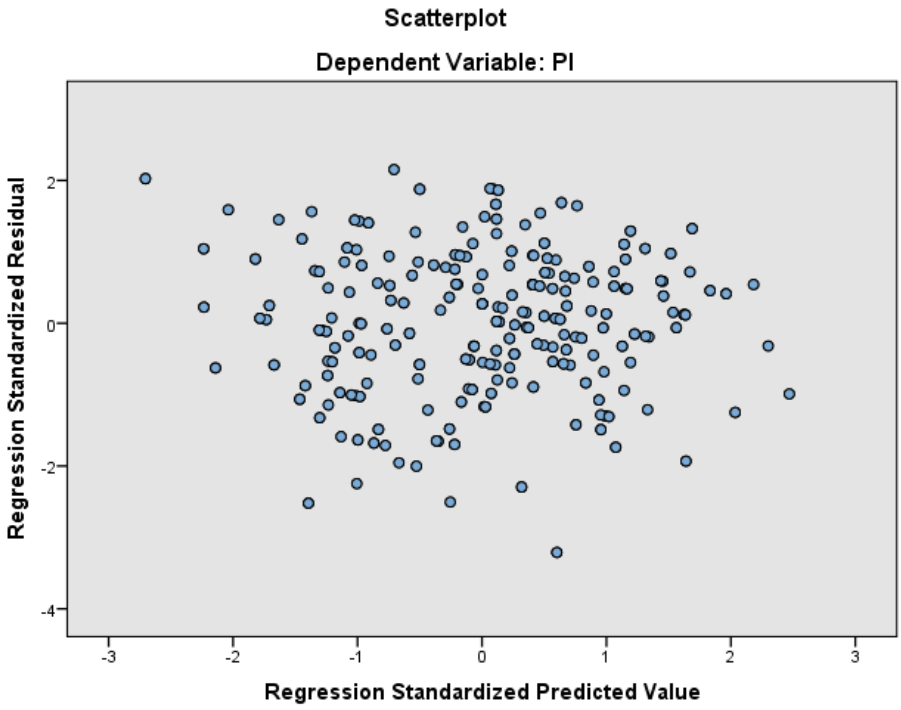
Graph 4.7: Normal P-P Plot - Observed Cum Prob



Graph 4.8: Histogram - Regression Standardized Residuals



Graph 4.9: Scatterplot - Regression Standardized Predicted Value



4.2.4. The effects of PI, PV, MV, EmV, EpV & CV on AHPB

A multiple linear regression analysis was performed with Actual Hybrid Purchasing Behavior (AHPB) as the dependent variable and with Purchase Intention (PI), Performance Value (PV), Monetary Value (MV), Emotional Value (EmV), Epistemic Value (EpV) and Conditional Value (CV) as the independent variables (Model 4). The results of the regression, the normality and the heteroscedasticity tests as well as the relevant graphs and comments are presented below.

Table 4.12: Model 4 Summary - ANOVA - Resid. Stat.

The results of multiple linear regression analysis					
Model 4 Summary			*ANOVA*		*Resid. Stat.*
R^2	Adjusted R^2	Durbin-Watson	F	Sig.	Cook's Distance
0,739	0,736	1,989	258,974	0,000	0,093

From Table 4.12, we notice that the Model 4 explains the 73,9% of the variance in the AHPB variable which is a respectable result. It reaches statistical significance since F value in the ANOVA test is 258,974 and it is significant at the level of 0,001. The Durbin-Watson statistic is 1,989 which does not indicate autocorrelation. The

Cook's Distance is 0,093, hence none of the cases has an undue influence on the results of the model.

Table 4.13: Coefficients

The results of multiple linear regression analysis			
Coefficients			
Dependent variable: Actual Hybrid Purchasing Behavior (AHPB)			
Independent Variables	**Standardized Coefficients**	**p-value**	**VIF**
Purchase Intention (PI)	0,221	0,009	2,335
Performance Value (PV)	0,135	0,257	3,569
Monetary Value (MV)	-1,067	0,000	1,903
Emotional Value (EmV)	0,288	0,062	1,613
Epistemic Value (EpV)	0,965	0,000	2,865
Conditional Value (CV)	0,270	0,171	1,240
PV*PI	-0,303	0,180	2,911
MV*PI	1,277	0,000	1,588
EmV*PI	0,602	0,039	3,987
EpV*PI	-1,254	0,000	2,437
CV*PI	-0,270	0,444	3,523

The output from multiple linear regression analysis indicates that PI positively influences the respondent's AHPB. Additionally, MV and EmV positively moderate the relationship between respondent's PI and AHPB. That is, if consumers attach higher PI, MV and EmV, the possibility that they will purchase HVs is higher, supporting H11, H17 and H18. Further discussion of our findings is provided in Section 5. Table 4.14 reports the results of Model 4 hypotheses.

Table 4.14: The results of Model 4 Hypotheses

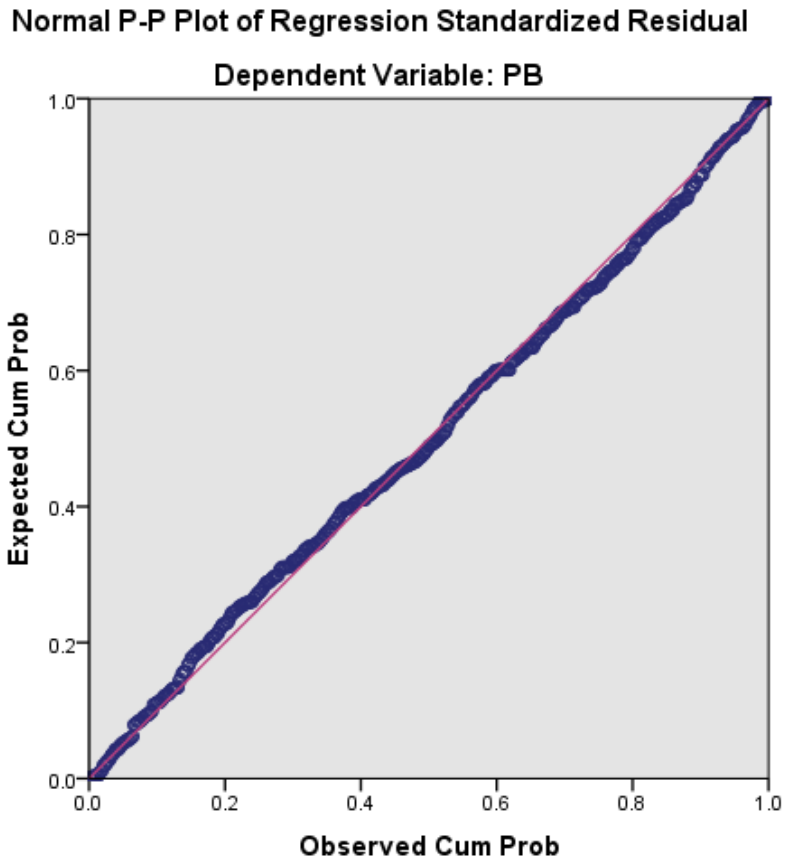
	Hypotheses	**Results**
H11	*Consumers' purchase intention towards HVs positively affects their actual hybrid purchasing behavior*	***Supported***
H16	*Performance value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Not Supported***
H17	*Monetary value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Supported***
H18	*Emotional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Supported***

H19	*Epistemic value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Not Supported***
H20	*Conditional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Not Supported***

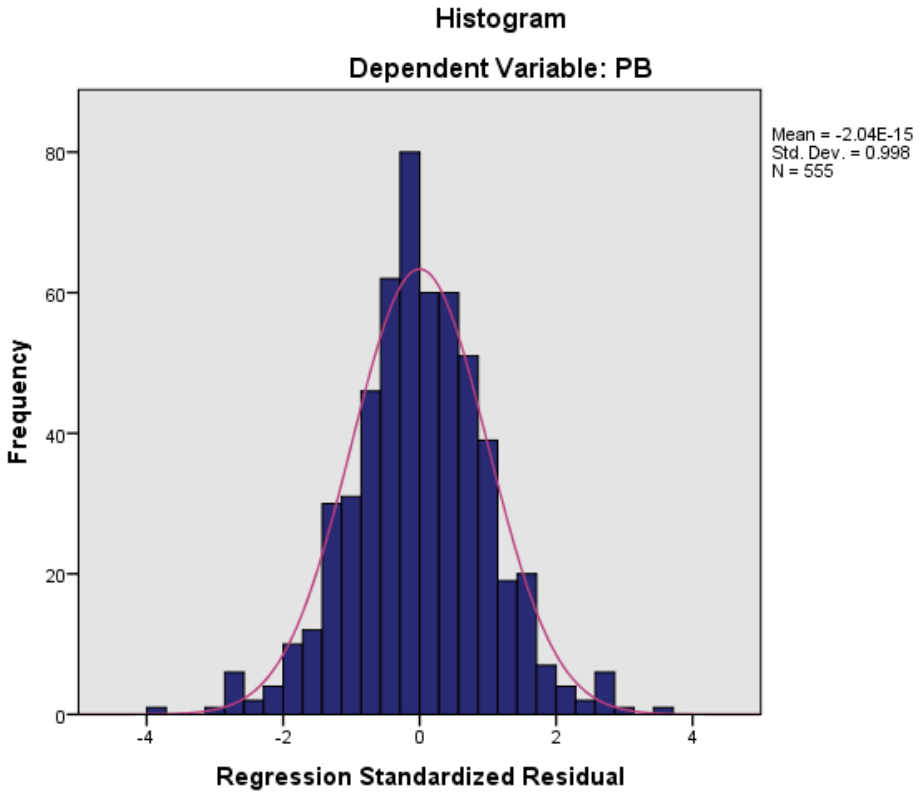
Furthermore, the VIF value for each independent variable is below the cutoff of 10, therefore the multicollinearity assumption is not violated.

In Model 4, in the Normal Probability Plot, the points lie in a reasonable straight diagonal line which means that there are no major deviations from normality. In the Scatterplot, the standardized residuals are rectangularly distributed, therefore no systematic pattern is obvious and the Histogram indicates that the residuals are normally distributed.

Graph 4.10: Normal P-P Plot - Observed Cum Prob



Graph 4.11: Histogram - Regression Standardized Residuals



Graph 4.12: Scatterplot - Regression Standardized Predicted Value

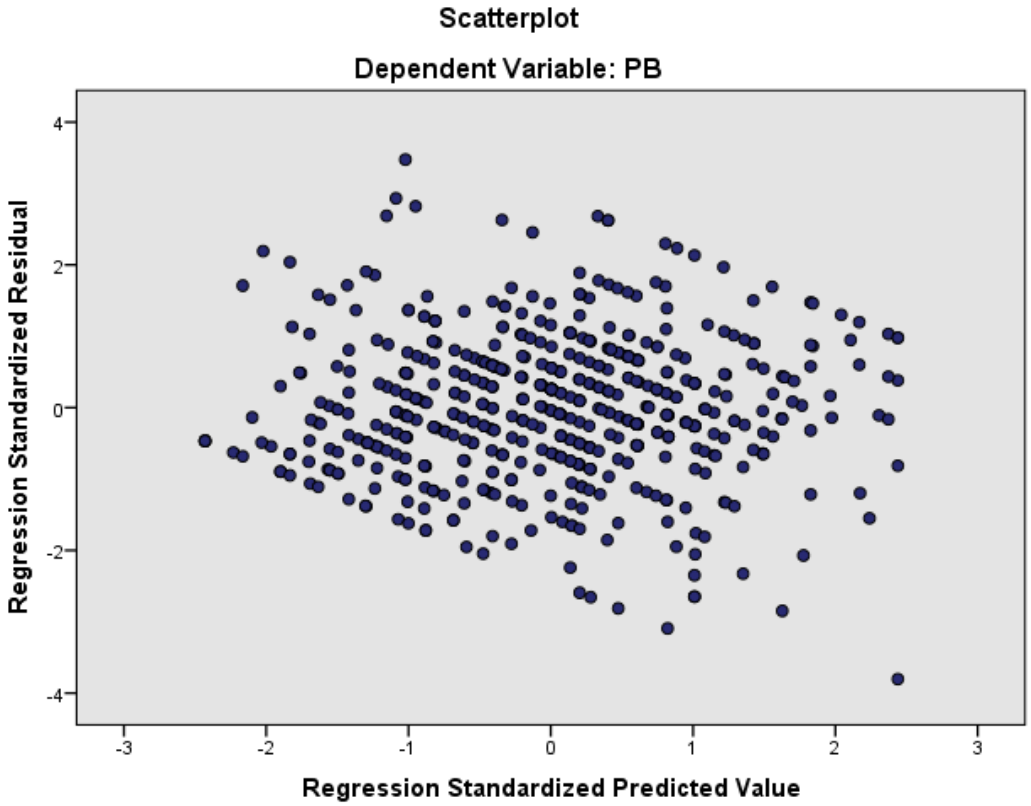


Table 4.15 reports all the results of the research model hypotheses.

Table 4.15: The results of the research model Hypotheses

	Hypotheses	**Results**
H1	*Intrinsic motives are positively related to consumers' attitude*	***Supported***
H2	*Intrinsic motives are positively related to consumers' information seeking*	***Supported***
H3	*Extrinsic motives are positively related to consumers' attitude*	***Supported***
H4	*Extrinsic motives are positively related to consumers' information seeking*	***Supported***
H5	*Personal green norms are positively related to consumers' attitude*	***Not Supported***
H6	*Personal green norms are positively related to consumers' information seeking*	***Supported***
H7	*Green beliefs are positively related to consumers' attitude*	***Supported***
H8	*Green beliefs are positively related to consumers' information seeking*	***Supported***
H9	*Consumers' attitude towards HVs positively affects the HVs purchase intention*	***Supported***
H10	*Consumers' information seeking about HVs positively affects the HVs purchase intention*	***Not Supported***
H11	*Consumers' purchase intention towards HVs positively affects their actual hybrid purchasing behavior*	***Supported***
H12	*Green-washing negatively moderates the relationship between consumers' attitude and HVs purchase intention*	***Not Supported***
H13	*Green-washing negatively moderates the relationship between consumers' information seeking and HVs purchase intention*	***Not Supported***
H14	*Environmental Concern positively moderates the relationship between consumers' attitude and HVs purchase intention*	***Not Supported***
H15	*Environmental Concern positively moderates the relationship between consumers' information seeking and HVs purchase intention*	***Supported***
H16	*Performance value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Not Supported***
H17	*Monetary value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Supported***
H18	*Emotional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Supported***
H19	*Epistemic value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Not Supported***
H20	*Conditional value positively moderates the relationship between consumers' purchase intention towards HVs and their actual hybrid purchasing behavior*	***Not Supported***

4.3. One-Way Analysis of Variance

4.3.1. The effect of Age on PI

A one-way analysis of variance (ANOVA) was performed with Purchase Intention (PI) as the dependent variable and with Age as the independent grouping variable.

Table 4.16: The results of one-way ANOVA in different age groups

The results of one-way ANOVA			
Dependent variable: Purchase Intention (PI)			
Independent Grouping Variable: Age	**N**	**Mean**	
<20	9	3,5833	
20-29	114	5,5303	
30-39	216	5,6944	
40-49	114	5,9803	
50-59	87	6,0776	
>60	15	6,2500	
Levene Statistic	**Sig.**	**F**	**Sig.**
4,459	0,001	14,221	0,000

Table 4.17: The results of multiple comparisons

The results of Multiple Comparisons			
Dependent variable: Purchase Intention (PI)			
Independent Grouping Variable: Age			
(I) Age	**(J) Age**	**Mean Difference (I-J)**	**Sig.**
<20	20-29	-1,64693*	0,000
	30-39	-2,11111*	0,000
	40-49	-2,39693*	0,000
	50-59	-2,49425*	0,000
	>60	-2,66667*	0,000
20-29	<20	1,64693*	0,000
	30-39	-0,46418*	0,006
	40-49	-0,75000*	0,000
	50-59	-0,84732*	0,000
	>60	-1,01974*	0,014
30-39	<20	2,11111*	0,000
	20-29	0,46418*	0,006
	40-49	-0,28582	0,250
	50-59	-0,38314	0,085
	>60	-0,55556	0,444
40-49	<20	2,39693*	0,000

	20-29	0,75000*	0,000
	30-39	0,28582	0,250
	50-59	-0,09732	0,991
	>60	-0,26974	0,954
50-59	<20	2,49425*	0,000
	20-29	0,84732*	0,000
	30-39	0,38314	0,085
	40-49	0,09732	0,991
	>60	-0,17241	0,994
>60	<20	2,66667*	0,000
	20-29	1,01974*	0,014
	30-39	0,55556	0,444
	40-49	0,26974	0,954
	50-59	0,17241	0,994
**The mean difference is significant at the 0,05 level*			

The results of one-way ANOVA show that the F value is 14,221 with a significant value of 0,000. Thus, there were differences between age groups and purchase intention. In our study, higher age groups are more likely to purchase HVs compared to lower age groups. Therefore, we can conclude that the higher the age is, the higher the purchase intention of HVs is.

4.3.2. The effect of Monthly Income on PI

A one-way analysis of variance (ANOVA) was performed with Purchase Intention (PI) as the dependent variable and with Monthly Income as the independent grouping variable.

Table 4.18: The results of one-way ANOVA in different monthly income groups

The results of One-way ANOVA			
Dependent variable: Purchase Intention (PI)			
Independent Grouping Variable: Monthly Income	**N**	**Mean**	
<500,00 €	66	5,0795	
501,00-1.000,00 €	234	5,5897	
1.001,00-2.000,00 €	213	5,8732	
>2.000,00 €	42	6,3929	
Levene Statistic	**Sig.**	**F**	**Sig.**
4,856	0,002	13,564	0,000

Table 4.19: The results of multiple comparisons

The results of Multiple Comparisons			
Dependent variable: Purchase Intention (PI)			
Independent Grouping Variable: Monthly Income			
(I) Monthly Income	**(J) Monthly Income**	**Mean Difference (I-J)**	**Sig.**
<500,00 €	501,00-1.000,00 €	-0,51020*	0,009
	1.001,00-2.000,00 €	-0,79369*	0,000
	>2.000,00 €	-1,31331*	0,000
501,00-1.000,00 €	<500,00 €	0,51020*	0,009
	1.001,00-2.000,00 €	-0,28350*	0,050
	>2.000,00 €	-0,80311*	0,000
1.001,00-2.000,00 €	<500,00 €	0,79369*	0,000
	501,00-1.000,00 €	0,28350*	0,050
	>2.000,00 €	-0,51962*	0,041
>2.000,00 €	<500,00 €	1,31331*	0,000
	501,00-1.000,00 €	0,80311*	0,000
	1.001,00-2.000,00 €	0,51962*	0,041
**The mean difference is significant at the 0,05 level*			

The results of one-way ANOVA show that the F value is 13,564 with a significant value of 0,000. Thus, there were differences between monthly income groups and purchase intention. In our study, the highest monthly income group is more likely to purchase HVs. Therefore, we can conclude that the higher the monthly income is, the higher the purchase intention of HVs is.

4.4. Independent Samples t-test

4.4.1. The effect of City of Residence on PI

An Independent Samples t-test was performed to test Purchase Intention (PI) with the respondents' city of residence.

Table 4.20: The results of Independent Samples t-test 1

The results of Independent Samples t-test 1		
Dependent variable: Purchase Intention (PI)		
Independent Variable: City of Residence	**N**	**Mean**
Within Attica	474	5,7975
Outside Attica	81	5,1204

Levene's Test			t-test
	F	Sig.	Sig. (2-tailed)
Equal variances assumed	4,072	0,044	
Equal variances not assumed			0,000

Based on the results of the Independent Samples t-test, the F value is 4,072 with a significant value of 0,044. Thus, there were differences between the city of residence and purchase intention. Consumers who live within Athens are more likely to purchase HVs compared to consumers who live outside of Athens. This might be a result because Athenians live in a city where carbon emissions are high, and distances are greater in comparison to distances in cities outside Athens.

4.4.2. The effect of Hybrid Car Knowledge on ATT & PI

An Independent Samples t-test was performed to test Attitude (ATT) with the respondents' hybrid car knowledge.

Table 4.21: The results of Independent Samples t-test 2

The results of Independent Samples t-test 2			
Dependent variable: Attitude (ATT)			
Independent Variable: Hybrid Car Knowledge		**N**	**Mean**
Yes		363	5,9559
No		192	5,4063
Levene's Test			**t-test**
	F	**Sig.**	**Sig. (2-tailed)**
Equal variances assumed	33,737	0,000	
Equal variances not assumed			0,000

Based on the results of the Independent Samples t-test, the F value is 33,737 with a significant value of 0,000. Thus, there were differences between hybrid car knowledge and attitude. Surprisingly, there were no significant differences between hybrid car knowledge and purchase intention, when we performed another Independent Samples t-test. Thus, we can conclude that consumers who have knowledge of HVs are more likely to change their consuming attitude towards HVs compared to consumers who do not have this knowledge, but the purchase intention is not affected by hybrid car knowledge.

5. Discussion and Conclusion

Based on data collected from a scale survey of 555 consumers, the novelty of the present model lies in the fact that two distinct theories were combined in order to examine the motivational factors for HVs purchase. The Attribution Theory and the Theory of Consumption Values represent a reliable predictive model of intention to purchase and to actual purchase HVs.

Multiple linear regression analyses were used for testing and verification. In the first case attitude was the dependent variable and intrinsic motives, extrinsic motives, personal green norms and green beliefs were the independent variables. In the second case information seeking was the dependent variable and intrinsic motives, extrinsic motives, personal green norms and green beliefs were the independent variables.

Specifically, the results reveal that intrinsic motives, extrinsic motives and green beliefs positively influence consumers' attitude toward HVs and information they seek. In other words, the findings show that consumers infer a genuine intent by their social network to do good when they believe that green beliefs are prevalent and social responsible practices are a prerequisite. These findings reflect the importance which consumers attach to a products role in society and indicate that consumers do believe in the power of good actions.

Critical is the fact that personal green norms positively influence consumers' information seeking but not their attitude. In response to such findings, Parguel et al., (2011), argued that in a social network in which most members behave in an environmentally responsible manner and green products are the norm rather than the exception, a consumer is likely to think that an emulation effect is taking place and that there is a lack of novelty and genuineness in the behavior of the consumers.

Generally, these findings are in line with the tenets of Attribution Theory that people use intrinsic and extrinsic motives to form causal judgments about a behavior. In our study, intrinsic and extrinsic motives and information regarding the personal green norms and green beliefs, support Calder & Burnkrant (1977) statement that

''Attribution theory was used to create a new approach to interpersonal influence which is widely recognized as a major determinant of consumer behavior''.

In the third case purchase intention was the dependent variable and consumers' attitude, information seeking, green-washing, and environmental concern were the independent variables.

The findings highlight that consumers' attitude positively influences HVs purchase intention. In fact, an increase in purchase intention may rely on consumers' attitude.

Additionally, the results reveal that information seeking about HVs does not generate interest in purchase intention. Consumers who are unsure about green products turn to additional information sources to confirm or disconfirm their doubts. This finding is in disagreement with findings in other literatures. For example, in the product development literature, consumer doubts about new products result in additional information search (Sääksjärvi & Morel, 2010).

Furthermore, environmental concern positively moderates the relationship between information seeking and purchase intention, but does not affect the relationship between attitude and purchase intention. This result may partly explain why, despite increasing concern about environmental issues, many consumers are still reluctant to purchase green products (Öberseder, Schlegelmilch & Gruber, 2011). In our case, consumers' doubts about environmental benefits of HVs translate into a willingness to search information about them.

Notably, in our study, the extent to which consumers are negatively influenced by green-washing has no effect on their attitude, information seeking, and purchase intention. This finding is in disagreement with the findings of Chen & Chang (2012), who argued that green-washing threatens the progress to real sustainability and is a major impediment to green marketing because consumers have learned about the pitfalls of green-washing, since many environmental claims of green products are neither true nor transparent in the market.

In the fourth case actual hybrid purchasing behavior was the dependent variable and purchase intention, performance value, monetary value, emotional value, epistemic value and conditional value were the independent variables.

Perhaps of no surprise is the finding that purchase intention is a key determinant of actual hybrid purchasing behavior, which confirms Chandon et al., (2005) statement that *''Although the intention is not always an accurate predictor of future behavior, consumers tend to follow their purchase intention''.*

The other findings of this case indicate a positive effect of a functional and a non-functional value, monetary value and emotional value, respectively, on consumers' intention to purchase and actual purchase HVs. Specifically, the results reveal that monetary and emotional values significantly and positively moderate the relationship between purchase intention and actual hybrid purchasing behavior.

A number of research surveys regarding green consumption which were conducted by Laroche, Bergeron & Barbaro-Forleo (2001), demonstrated that people were willing to pay more for green products. In our study, consumers are willing to purchase HVs provided that the price is reasonable. The results suggest that the monetary value is the most important value for the intention of HVs purchase and actual purchase by consumers. On the one hand, this finding corroborates the findings by Han, Wang, Zhao & Li, (2017), who found that monetary value affects consumers purchase intention and on the other hand, our findings contradict the findings by Han et al., (2017) in the field of the most important consumption value, which was the performance value in their research.

Emotional value has a similar positive influence on consumers' intention of HVs purchase and actual purchase. This finding corroborates the findings of emotional value by Lin & Huang (2012). People who regard going green as an act that helps safeguard the environment, experience positive feelings of doing good for themselves and for society at large. HVs consumption could be promoted as good and consumers would increase their intake, identifying themselves as environmental defenders, driven by the high emotional value attached to HVs.

Surprisingly, performance, epistemic and conditional values do not appear to register significant impacts on purchase intention and actual hybrid purchasing behavior, in comparison to other studies. Notably, performance value was the key factor of purchase intention in Han et al., (2017) research, and epistemic and conditional values were key factors influencing consumer choice behavior in the study of Lin & Huang (2012). Thus, in our study, performance, epistemic and conditional values are not determinants influencing the consumption of HVs.

It should be mentioned that a further analysis in socio-demographics indicated, that much of this data did not prove to be influential for a purchase since they were not statistically significant in the case of purchasing HVs. Gender, Age, Educational Attainment, Marital Status, Children, City of Residence, Type of Work, Monthly Income, Driving License, Car Possession, Hybrid Car Category and Hybrid Car Knowledge, in our survey, were not determinants for HVs purchase.

According to the results of one-way ANOVA, respondents with higher age and higher monthly income have the strongest influence on purchase intention. Based on the results of the Independent Samples t-tests, consumers who live within Athens are more likely to purchase HVs compared to consumers who live outside of Athens. Additionally, consumers who have knowledge of HVs are more likely to change their consuming attitude towards HVs but purchase intention is not affected by hybrid car knowledge. Evidently, older ages, higher monthly income and Athenians suggest a better audience for policies targeted to promote HVs.

In conclusion, the results of this study highlight the importance of intrinsic and extrinsic motives, personal green norms, green beliefs, attitude, environmental concern, purchase intention, monetary and emotional values in the prediction of actual hybrid purchasing behavior. Our results also provide substantial empirical support to the Attribution Theory and the Theory of Consumption Values.

5.1. Theoretical Implications

Attribution theory was used to create a new approach to interpersonal influence which was widely recognized as a major determinant of consumer behavior (Calder

& Burnkrant, 1977). The Theory of Consumption Values is used to explain why consumers decide to purchase or not a specific product, why consumers choose one product type than another, and why consumers prefer a brand over another (Sheth et al., 1991).

The contributions of our study is that we combined these two distinct theories in our research model and added influences - values (constructs), such as green-washing and environmental concern, in order to investigate the determinants that influence the consumption of HVs in Greece. In other words, green components are considered necessary to be investigated in studies like the present. Additionally, the Theory of Consumption values was used to highlight its role as a moderator in the relationship between purchase intention and actual hybrid purchasing behavior.

Finally, we can ensure that factors, such as intrinsic motives, extrinsic motives, personal green norms, green beliefs, attitude, environmental concern, and monetary and emotional values, which have not been used all together, significantly contributed to enlightening some of the determinants which affect the consumption of HVs in Greece.

5.2. Managerial Implications

HVs have significant prospects because of their excellent mileage and low emissions. This study offers guidelines and implications for promoting HVs.

Firstly, marketers should develop more informative advertising to educate the consumers on the benefits and important features of HVs. As a result, this may inspire the consumers' acceptance of these novel vehicles.

Secondly, relevant financial incentive policies to lower the purchase price of HVs may be necessary to promote HVs. In order to avoid over-pricing, the manufacturers should introduce more affordable HV models, because most of the consumers are searching for a more acceptable and affordable price. Government incentives are also one of the factors that influence the purchase intention of HVs. As a result, the government should provide incentives for HV buyers.

Finally, the slogan “drive green” can be used as a trigger to attract potential consumers and help them form positive attitude towards HVs, since attitude is positive towards purchase intention. The commercial propaganda or marketing plan should emphasize the HV characteristics of novelty, innovation, environmentally friendly, fuel-efficient, self-image and social identity and enable consumers realize that they can obtain intangible benefits and values when they purchase HVs. This information is critical for marketing strategies and consumers who regard themselves as pro-environmental and attach importance to their ‘‘green-image”.

5.3. Limitations and Future Research

Although this study provides certain interesting findings and implications, it is important to highlight the limitations of this research.

Firstly, the research model can be further extended or divided. For example, more specific variables, such as brand preference could be included in future studies. Additionally, similar studies could only use either the Theory of Consumption Values, either the Attribution Theory in order to investigate the determinants.

Secondly, this study does not specifically look at the early buyers of HVs in Greece. It would be very useful to study this group of buyers exclusively.

Thirdly, the results are based on cross-sectional data. In studies that follow, a longitudinal design could be adopted in order to ensure the accuracy and scientificity of the results. Additionally, the results of this research are mainly based on data collected from 555 respondents in Greece, which may restrict the generalizability of the findings, hence they do not represent the general situation of the whole country. Thus, future studies should have a bigger sample size in order for the results to become more accurate and valid.

Finally, a future study of the determinants that influence the consumption of electric vehicles in Greece could also take place.

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Appendix

The constructs and their measurement items, which were used in our survey questionnaire, are presented in this section. The questionnaire, excluding personal information, was composed of 73 statements in which respondents had to denote the level of agreement. Each statement response was measured by a seven-point Likert Scale (1=strongly disagree and 7=strongly agree).

Constructs & statements	**References**
INTRINSIC MOTIVES	
I would buy a hybrid vehicle primarily because I want to do the right thing for the environment	Parguel, B., Benoît-Moreau, F., & Larceneux, F. (2011). How Sustainability Ratings Might Deter "Green-washing": A Closer Look at Ethical Corporate Communication. *Journal of Business Ethics, 102(1),* 15-28.
I would buy a hybrid vehicle primarily because I am genuinely concerned about being social responsible	Vlachos, P. A., Panagopoulos, N. G., & Rapp, A. A. (2013). Feeling Good by Doing Good: Employee CSR-Induced Attributions, Job Satisfaction, and the Role of Charismatic Leadership. *Journal of Business Ethics, 118(3),* 577-588.
I would buy a hybrid vehicle primarily because I feel morally obligated to help the environment	
I would buy a hybrid vehicle primarily because I want to give back something to the environment	
EXTRINSIC MOTIVES	
I would buy a hybrid vehicle primarily because I want to improve my image among my social network	Parguel, B., Benoît-Moreau, F., & Larceneux, F. (2011). How Sustainability Ratings Might Deter "Green-washing": A Closer Look at Ethical Corporate Communication. *Journal of Business Ethics, 102(1),* 15-28.
I would buy a hybrid vehicle primarily because it's fashionable to do so nowadays	
I would buy a hybrid vehicle primarily because I want to strengthen my relationships with people who are environmentally responsible	Vlachos, P. A., Panagopoulos, N. G., & Rapp, A. A. (2013). Feeling Good by Doing Good: Employee CSR-Induced Attributions, Job Satisfaction, and the Role of Charismatic Leadership. *Journal of Business Ethics, 118(3),* 577-588.
I would buy a hybrid vehicle primarily because people from my social network are doing the same	
PERSONAL GREEN NORMS	
People who belong to my social network consume environmentally friendly services and products	Colwell, S. R., & Joshi, A. W. (2011). Corporate Ecological Responsiveness: Antecedent Effects of Institutional Pressure and Top Management Commitment and Their Impact on Organizational Performance. *Business Strategy and the Environment, 22(2),* 73-91.
I share common environmental values with people who belong to my social network	
People who belong to my social network consider it necessary to be environmentally responsible	
GREEN BELIEFS	

I believe that someone who buys a hybrid vehicle is socially responsible	Wagner, T., Lutz, R. J., & Weitz, B. A. (2009). Corporate Hypocrisy: Overcoming the Threat of Inconsistent Corporate Social Responsibility Perceptions. *Journal of Marketing, 73(6),* 77-91.
I believe that someone who buys a hybrid vehicle contributes to the well-being of society	
I believe that someone who buys a hybrid vehicle adopts environmental protection behavior	
ATTITUDE	
I am interested in hybrid vehicles	Han, L., Wang, S., Zhao, D., & Li, J. (2017). The intention to adopt electric vehicles: Driven by functional and non-functional values. *Transportation Research Part A: Policy and Practice, 103,* 185-197.
I would like to treat hybrid vehicles as one of my purchase choices	
It gives me positive feeling to buy a hybrid vehicle	
INFORMATION SEEKING	
Before buying a hybrid vehicle, I would obtain substantial information about the different makes and models of hybrid vehicles	Dholakia, U. M. (2001). A motivational process model of product involvement and consumer risk perception. *European Journal of Marketing, 35(11/12),* 1340-1362.
Before buying a hybrid vehicle, I would acquire that a great deal of information about its performance	
I would give other people advice about buying a particular make and model hybrid vehicle	
I would like to influence my friends in their choice of particular make and model of hybrid vehicles	
GREEN-WASHING	
Most companies mislead with words about the environmental features of their products	Chen, Y.-S., & Chang, C.-H. (2012). Greenwash and Green Trust: The Mediation Effects of Green Consumer Confusion and Green Perceived Risk. *Journal of Business Ethics, 114(3),* 489-500.
Most companies mislead with visuals or graphics about the environmental features of their products	
Most companies provide vague or seemingly un-provable environmental claims for their products	
Most companies overstate or exaggerate the environmental features of their products	
Most companies leave out or hide important information about the real environmental features of their products	
ENVIRONMENTAL CONCERN	
The environment is one of the most important issues facing society today	Bohlen, G., Schlegelmilch, B. B., & Diamantopoulos, A. (1993). Measuring ecological concern: A multi-construct perspective. *Journal of Marketing Management, 9(4),* 415-430.
Strict global measures must be taken immediately to halt environmental decline	

A substantial amount of money should be devoted to environmental protection	
We should pay a considerable amount of money to preserve our environment	
Unless each of us recognizes the need to protect the environment, future generations will suffer the consequences	
The benefits of protecting the environment do not justify the expense involved	
The environmental policies of the main political parties are one issue I consider when deciding how to vote	
Green issues should be a main consideration when deciding what we do in the future	
Personally, I can help to slow down environmental deterioration	
The importance of the environment is frequently exaggerated	
The increasing destruction of the environment is a serious problem	
The benefits of overcoming environmental deterioration are not sufficient to warrant the expense involved	
The Government should take responsibility for environmental protection	
Each of us, as individuals, can make a contribution to environmental protection	
Everyone is personally responsible for protecting the environment in their everyday life	
Issues relating to the environment are very important	
If all of us, individually, made a contribution to environmental protection, it would have a significant effect	
Even if each of us contributed towards environmental protection, the combined effect would be negligible	
Too much fuss is made about environmental issues	
Firms should always put profitability before environmental protection	
PURCHASE INTENTION	
It is likely that I would buy a hybrid vehicle in the future	Chandran, S., & Morwitz, V. G. (2005). Effects of Participative Pricing on Consumers' Cognitions and Actions: A Goal Theoretic Perspective. *Journal of Consumer Research, 32(2),* 249-259.
It is probable that I would purchase a hybrid vehicle on offer in the future	

It is certain that I would purchase a hybrid vehicle in the future	
A hybrid vehicle has the biggest chance, if I would buy a new vehicle in the future	
PERFORMANCE VALUE	
The hybrid vehicles possess a consistent quality	Han, L., Wang, S., Zhao, D., & Li, J. (2017). The intention to adopt electric vehicles: Driven by functional and non-functional values. *Transportation Research Part A: Policy and Practice, 103,* 185-197.
The hybrid vehicles in current market are well made	
The hybrid vehicles in current market have an acceptable standard of quality	
The hybrid vehicles perform consistently	Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing, 77(2),* 203-220.
MONETARY VALUE	
In current market, hybrid vehicles are reasonably priced	Han, L., Wang, S., Zhao, D., & Li, J. (2017). The intention to adopt electric vehicles: Driven by functional and non-functional values. *Transportation Research Part A: Policy and Practice, 103,* 185-197.
In my opinion, the purchase of hybrid vehicles is means to save money	
A hybrid vehicle is a good product for the price	Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing, 77(2),* 203-220.
A hybrid vehicle would be economical	
EMOTIONAL VALUE	
I would enjoy driving a hybrid vehicle than a conventional one	Han, L., Wang, S., Zhao, D., & Li, J. (2017). The intention to adopt electric vehicles: Driven by functional and non-functional values. *Transportation Research Part A: Policy and Practice, 103,* 185-197.
Hybrid vehicles would make me want to use, in order to reduce environmental destruction	
The experience of driving a hybrid vehicle would give me pleasure	
Driving a hybrid car would make me feel like I'm personally contributing to something better	Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing, 77(2),* 203-220.
EPISTEMIC VALUE	
Driving a hybrid vehicle characterizes me as a person who likes to try something different	Han, L., Wang, S., Zhao, D., & Li, J. (2017). The intention to adopt electric vehicles: Driven by functional and non-functional values. *Transportation Research Part A: Policy and Practice, 103,* 185-197.
Driving a hybrid vehicle characterizes me as a person who is a pioneer in the technological sphere	
Driving a hybrid vehicle characterizes me as a person who enjoys the benefits of innovation	
Driving a hybrid vehicle characterizes me as a person who would like to share technological knowledge	
CONDITIONAL VALUE	

I would buy a hybrid vehicle under worsening environmental conditions	Lin, P.-C., & Huang, Y.-H. (2012). The influence factors on choice behavior regarding green products based on the theory of consumption values. *Journal of Cleaner Production, 22(1),* 11-18.
I would buy a hybrid vehicle when there is a subsidy for hybrid vehicles	
I would buy a hybrid vehicle when there are discount rates for hybrid vehicles or promotional activity	
I would buy a hybrid vehicle when a model/brand of my interest is available	
ACTUAL HYBRID PURCHASING BEHAVIOR	
I would like to buy a hybrid vehicle in the future	Wu, J.-H., Wu, C.-W., Lee, C.-T., & Lee, H.-J. (2014). Green purchase intentions: An exploratory study of the Taiwanese electric motorcycle market. *Journal of Business Research, 68(4),* 829-833.
I would like to buy a hybrid vehicle for energy savings	
I would buy a hybrid vehicle if its price is reasonable	

The personal information section of the questionnaire included the following categories and the respondents had to select one option from the list of the defined answers.

Categories	**Answers**
Gender	Male
	Female
Age	<20
	20-29
	30-39
	40-49
	50-59
	>60
Educational Attainment	Secondary Education
	Institution for Vocational Training
	University/Tech. Educational Institution
	Master
	PhD
Marital Status	Single
	Married
	Divorced
	Widow/er
Children	Yes
	No
City of Residence	Within Attica

	Outside Attica
Type of Work	Civil Servant
	Private Employee
	Freelance
	Retired
	Student
	Unemployed
Monthly Income	<500,00 €
	501,00-1.000,00 €
	1.001,00-2.000,00 €
	>2.000,00 €
Driving License (category B)	Yes
	No
Car Possession	Yes
	No
Hybrid Car Category	Yes
	No
Hybrid Car Knowledge	Yes
	No