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Attitudes and purchase intentions toward electric cars: What types of advertising appeal and message are most effective?

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ABSTRACT

This master thesis aimed to investigate the relative effectiveness of rational and emotional advertisement appeals, combined with or without a non-environmental message, in producing positive attitudes and purchase intentions towards electric cars. The combination of these two dimensions resulted in four different ad types, which are compared on their ability to influence attitudes and purchase intentions. The results of the study can provide managers with a better understanding of the factors affecting an advertisement's ability to influence attitudes, as well as guidelines for how an advertisement should be designed when targeting a particular segment of consumers, taking these factors into account.

By combining theory from the fields of consumer psychology and environmental psychology with the consumer marketing and advertising literature, two research models were elaborated. The first model aimed to structure the relationships between advertisement type, attitudes and purchase intentions, and was based on the *Theory of Planned Behaviour* as the underlying theoretical framework. The second model aimed to structure the factors moderating the relationship between advertisement type and attitudes. To test the two models, a quantitative study was conducted through means of an online survey-based experiment, collecting responses from 273 students at the Norwegian School of Economics.

The results show that the two emotional ads are more effective than the two rational ads when it comes to producing positive attitudes toward the ad. Similarly, the emotional ad with an additional message also produces more positive attitudes toward the ad in comparison to the rational ad with an additional message. However, the results show that when the moderating factors are taken into account, the relative effectiveness of the different ad types in producing a positive attitude toward the product category depends on consumers involvement with the product category, pro-environmental self-identity and perceived inconvenience of driving electric cars (the latter was just partially supported however). The results also show that the effectiveness of ad type in producing a positive attitude toward the car model depends on perceived inconvenience, previous experience with electric cars and gender.

PREFACE

This thesis was written as a part of my Master of Science in Economics and Business Administration at the Norwegian School of Economics (NHH). It accounts for 30 credits within my major in Marketing and Brand Management. The purpose of the thesis is to examine the relative effectiveness of different ad types, in terms of combinations of ad appeal and ad message, in influencing consumers' attitudes and subsequent purchase intentions towards electric cars.

The reason behind the choice of topic was my personal interest in marketing as well as environmental issues. In may 2009 I attended the 24th International Electric Vehicle Symposium and Exposition (EVS) in Stavanger, where I attended a very interesting lecture by Anna Rota-Biadici about marketing of electric cars to women, as well as other inspiring speeches and lectures upon how to drive demand for electric cars. Thus even before I started my bachelor's degree, it has been on my mind to write my master thesis upon marketing of electric cars. Moreover, although many international studies have identified factors that determine pro-environmental behaviour and intentions, only a few studies have looked at the implications of these factors upon advertising effectiveness for environmentally friendly products. Furthermore, no studies have looked at these implications specifically for advertisements for electric cars, neither in a Norwegian or an international context, which provided an opportunity for my study to give a valuable research contribution.

I have learned a lot during the process of writing this thesis, ranging from theoretical insights into the psychology behind consumers' pro-environmental behaviour, to methodological procedures for carrying out a scientific study. I has been challenging at times, but my special interest for the topic has driven my motivation throughout the process.

I would like to direct a special thanks to my advisor Magne Supphellen, for showing great interest in my work and excellent commitment to the advisor task, as well as providing constructive feedback. I would also like to thank Arild Schanke at the Study Administration at NHH for his help regarding the distribution of the surveys. Finally, I would a like thank all the students at NHH who responded to my pre-test questionnaire and the online survey, as well as friends and family for great support and encouragement during the writing process.

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1. INTRODUCTION

In the early 1970s the general public started to recognize the importance of environmental issues. Today it has become common knowledge that human behaviour is having severe impacts on the well-being of our planet. Consumers have become aware that they have some kind of impact on the environment through their consumption and everyday activities. However, they are also becoming increasingly aware that they can contribute to reducing this impact by engaging in more environmentally friendly behaviour.

An important part of environmentally friendly consumer behaviour is to make more environmentally friendly consumption decisions, also referred to as *green consumerism.* Green consumerism has several aspects, such as consuming less to reduce ones usage of unsustainable natural resources, or switching to more environmentally friendly product alternatives (Follows and Jobber, 1999). For example, Fisk (1974) stressed that consumers should reduce their consumption of scarce resources, and substitute the products they currently use for ones that do less damage to the environment (cited in Follows and Jobber, 1999). A trend that can be observed in many product categories is indeed consumers' rising demand for more environmentally friendly product alternatives. To keep up with this demand, marketers of products and services have adapted their offerings so as to reduce their impact on the environment. Providing consumers with more environmentally friendly product alternatives has become a basis for differentiation and a source of competitive advantage.

The above-mentioned trend can especially be observed in low-involvement consumer products, but has also started to show in high-involvement product categories and consumer durables such as cars. Indeed, there is now a general agreement that driving vehicles on fossil fuels is an important contributor to climate change. In a study by Gardner and Stern (2008), driving was also recognized as the activity with the largest consumption of energy, accounting for 39% of the average person's energy use. According to Byrne and Polonsky (2001), the increasing availability of alternative fuel vehicles (AFVs), particularily electric vehicles, signals an effort by automobile producers to contribute to mitigating climate change.

In Norway, emissions from passenger cars represent the second largest source of CO_2 emissions, after emissions from oil- and gas extraction (SSB, 2014a). The majority of the country's car fleet are still gasoline- and diesel driven, but the last few years there has been an increasing appearance of alternative fuel vehicles primarily of which are hybrid- and electrical vehicles (HEVs). The Norwegian Government has set a goal of reaching 50,000 zero emission vehicles within 2018. In response to this, the Norwegian Electric Vehicle Association has set their own goal of reaching 100.000 electric cars by 2020 (NEVA, 2014). Although there is still a way to go to reach this goal, electric cars are speeding up the pace, and in 2013 the electric car Nissan Leaf was the third most-selling car in Norway, with 4.604 registered cars (E24, 2014).

There is no doubt that the rising popularity of electric cars in Norway is due to the generous public policy scheme for electric cars. The Norwegian government has introduced several financial incentives such as no purchase taxes, no VAT on purchase, no toll road charges, free use of municipal parking as well as access to public bus lanes and free charging stations. These incentives will be in effect until 2018 or until the goal of 50,000 electric cars is met. However, at the current growth rate, this once-ambitious target is likely to be met already by the third quarter of 2015 (Overgaard, 2014). So what happens to the purchase of electric cars when these incentives are removed? It is obvious that the public incentives represent one of the main motives for Norwegian consumers to purchase electric cars. But when these are removed, what should marketers and salespeople of electric cars use as selling points? When sales no longer can rely on public incentives, how can advertisements be used as a tool to stimulate purchase? It is widely accepted by research scholars that advertisements can stimulate purchase intentions through influencing attitudes. But how should advertisements be designed in order to effectively influence attitudes and purchase intentions?

Consumers' attitudes and subsequent purchase intentions may indeed depend on the type of ad appeal (rational or emotional) used in the advertisement. Previous studies have examined the relative effectiveness of rational and emotional ad appeals for different products and services. However, just a few have done so in relation to environmentally friendly products, and none of these in the context of high-involvement products such as electric cars. In response to the growing demand for environmentally friendly alternatives also in high-involvement product categories, and the growing interest for electric cars, this is thus a relevant research topic. It may also have relevance for other environmentally friendly

product categories, and thus contribute to the research upon ad appeal in the context of environmentally friendly products. The first research question of this thesis therefore aims to find out which type of advertisement, in terms of combination of ad appeal and ad message, is most effective in influencing attitudes for electric cars:

RQ1: What type of advertisement is most effective in influencing attitudes and purchase intentions towards electric cars?

Moreover, researchers have found that the relative effectiveness of different types of ad appeal and ad message depends on a range of factors. However, so far little research has been done upon such factors that may potentially influence the relationship between ad type and Norwegian consumers' attitudes towards electric cars. This is another highly relevant research topic as it is important for marketers of electric cars to know what these factors are, in order to effectively adapt advertisements to their target audience. Likewise, many of these factors may also have relevance for other categories of environmentally friendly products, hence this may provide another contribution to the research on this topic. Thus in order to better understand what factors influence the relationship between ad type and consumers' attitudes towards electric cars, the second research question of this thesis is as follows:

RQ2: What factors influence the relationship between advertisement type and attitudes towards electric cars?

To answer these research questions, a literature review of research upon pro-environmental behaviour is useful. The next section will therefore undertake a review of international research upon pro-environmental consumer behaviour and its determinants.

Although the findings of this study might be generalizable to other high-involvement, environmentally friendly products, the study will have its limitations in predicting what type of advertisement is most effective in any given context. Further research upon the effects of ad appeal and ad message in other contexts and for other populations will therefore be necessary.

Below is an outline of the structure of this paper:

Chapter 1 Introduction and purpose	Introduction of the research topic, background information and research questions.
Chapter 2 Theoretical framework	Literature review and theoretical framework for the study followed by the development of hypotheses.
Chapter 3 Methodology	Description of the methodological steps taken to conduct the study.
Chapter 4 Analysis and results	Data analysis and presentation of the results of the hypotheses.
Chapter 5 Discussion	A discussion of the results in relation to theory and previous research findings, as well as managerial implications.
Chapter 6 Limitations and future research	An evaluation of the research's strengths and limitations, reliability and validity, and suggestions for future research.
Chapter 7 Conclusion	Concluding remarks.

2. THEORETICAL FRAMEWORK

2.1 Research on pro-environmental consumer behaviour

The research upon pro-environmental consumer behaviour started to materialize in the 1970s and 1980s, as environmental concern emerged and consumers started to consider the impact of their behaviour upon the environment (Follows and Jobber, 1999) In 1987, Hines, Hungerford, and Tomera published a meta-analysis of research upon the determinants of responsible environmental behaviour. As a result of the meta-analysis, they proposed a model consisting of cognitive variables (e.g. knowledge of the environmental issue and knowledge of action strategies) as well as psycho-social variables (attitudes, locus of control and sense of personal responsibility towards the environment), for predicting intentions to act and subsequent pro-environmental behaviour (Hines et al., 1987). However, since the study by Hines et al. (1987), there has been a steady stream of research investigating pro-environmental behaviour patterns and its antecedents (Bamberg and Möser, 2007).

As there were few environmentally friendly products available on the market at the time, research upon pro-environmental consumer behaviour before the 1990s mostly focused on non-consumption behaviours, such as energy conservation, water conservation and political activism (Follows and Jobber, 1999). In the 1990s, consumption related behaviours started to receive more interest but most of the studies were concentrated on post-purchase behaviours such as recycling and waste separation (Follows and Jobber, 1999). However, more recently a growing body of research has been focusing on factors determining consumers' choice of more environmentally friendly product alternatives, which also can be considered a pro-environmental behaviour. It is therefore reasonable to assume that many of the same factors influencing other types of pro-environmental behaviour, also will affect consumer's purchase intentions for environmentally friendly products and hence for electric cars.

With a growing demand for environmentally friendly products, the factors that affect purchase intentions for such products has gained increasing interest among marketing scholars. In a review article of research upon marketing and the environment, Kilbourne and Beckmann (1998) identified that the majority of studies related to this topic up to 1995,

addressed characteristics of the individual including demographics, attitudes, personality, knowledge and behaviour or behavioural intentions.

In a more recent study, Bamberg and Möser (2007) replicates the meta-analysis on psycho-social determinants of pro-environmental behaviour done by Hines et al. twenty years earlier. They argue that the area of psychosocial research relevant to the subject of pro-environmental behaviour can be categorized into two main research streams. The first is based on rational choice models like Ajzen's (1991) *theory of planned behaviour* (TBP) whereas the second builds upon Schwartz's (1977) *norm-activation model* (NAM). The first has its origin in Fishbein and Ajzen's (1975) *theory of reasoned action* (TRA), and was later extended to the theory of planned behaviour by Ajzen (1991). This stream of research regards self-interest as the main motive of pro-environmental behaviour. The second stream of research, with its origins in Schwartz's (1977) norm-activation model (NAM), takes the view that pro-environmental behaviour is primarily motivated by moral or personal norms. As the TPB also incorporate a norm component, *the subjective norm*, the TPB framework can be considered more complete than the NAM. However, Bamberg and Möser (2007) suggest that the best way to predict pro-environmental behaviour is to combine two theoretical frameworks, by simply adding the moral norm component to the TBP.

Using information from 57 research papers, Bamberg and Möser (2007) conduct a meta-analytic structural equation modelling (MASEM) test of theoretically postulated relations between 8 different determinants of pro-environmental behaviour. The results of the MASEM showed that behavioural intention mediated the influence of all the other psycho-social variables on pro-environmental behaviour. This suggests that a framework based on the theory of planned behaviour is appropriate for predicting pro-environmental behaviour. The following section will therefore discuss this theory of in more detail.

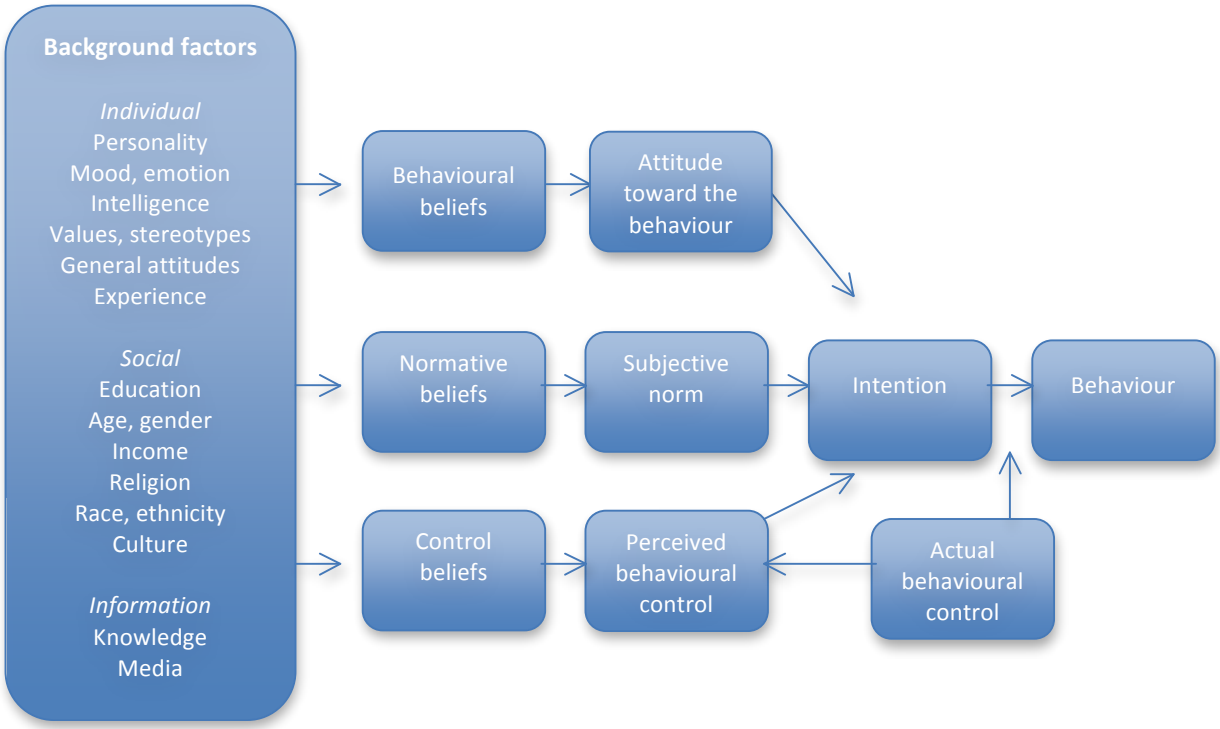
2.2 Theory of reasoned action and theory of planned behaviour

The *theory of planned behaviour* (hereafter TPB) is a rational choice model that builds upon the *theory of reasoned action* (TRA), developed by Fishbein and Ajzen in 1975. According to the TRA, an individual's behaviour is determined by his or her behavioural intention, which is influenced by the individual's attitude toward performing that behaviour and the subjective norm (Fishbein and Ajzen, 2005).

However, one of the main criticisms against the TRA were that sometimes individuals have the best intentions to perform a behaviour, but this does not always translate into actual behaviour as they are hindered by factors limiting their control over performing the behaviour. Ajzen therefore extended the TRA to include a *perceived behavioural control* component, which combined represent the TPB (Ajzen, 1991; Fishbein and Ajzen, 2005).

Figure 1 illustrates the combined theories of reasoned action and planned behaviour, showing the role of background factors in influencing behavioural, normative and control beliefs.

Figure 1: The theories of reasoned action and planned behaviour (Fishbein and Ajzen, 2005)



The TRA, as well as the TBP, predict the intention to perform a certain behaviour, by the *attitude toward that behaviour*. These attitudes are themselves determined by *behavioural beliefs*: "*considerations of the likely consequences of a behaviour*" (Fishbein and Ajzen, 2005, p.193). If an individual perceives that the positive consequences of performing the behaviour outweigh the negative ones, he or she is likely to form a favourable attitude toward the behaviour and vice versa. The more favourable the attitude, the stronger will be the intention.

The subjective norm is a form of social pressure that results from normative beliefs, i.e. *"considerations that deal with the likely approval or disapproval of a behaviour by friends, family members, coworkers, and so forth"* (Fishbein and Ajzen, 2005, p.193). The stronger the social pressure from others, the stronger will be the intention.

Finally, perceived behavioural control stems from control beliefs, i.e. *"beliefs concerning the presence or absence of factors that make performance of a behaviour easier or more difficult"* (Fishbein and Ajzen, 2005, p.193). The stronger the individual's sense that he or she has the ability to perform the behaviour, the stronger will be the intention.

These three types of beliefs may in turn be influenced by a variety of background factors, which can be divided into three main categories: *individual, social,* and *information* factors (cf. **Figure 1**, Fishbein and Ajzen, 2005). Background factors that are relevant in relation to determining pro-environmental behaviour will therefore be examined in the next section.

2.3 Determinants of pro-environmental purchase behaviour

2.3.1 Individual factors

Demographics

Demographics have been a widely studied determinant in the early studies upon pro-environmental behaviour, and include variables such as age, gender, income and educational level. However, the findings have mostly shown weak, insignificant or inconsistent relationships between demographic variables and pro-environmental behaviour (Hines et al., 1987). In other words, no socio-demographic profile of the typical 'green consumer' has been consistently identified. Therefore, most researchers now agree that demographic and socioeconomic variables generally are less effective in predicting pro-environmental behaviour than psychographic characteristics of the consumer such as knowledge, value-related and attitudinal variables (Cheah and Phau, 2011). Because of the low predictive power of demographic variables, more recent research has thus focused on analysing psychosocial variables (Bamberg and Möser, 2007). Psychosocial variables will therefore be the main focus in the following discussion.

Personality traits

A personality trait is a psychosocial variable which can be defined as *"an internal characteristic that determines how individuals behave in various situations"* (Hoyer and MacInnis, 2008, p.371). An example of a personality trait that has been examined in relation to pro-environmental purchasing behaviour is whether individuals identify themselves as 'green' or environmentally friendly consumers, which some researchers have conceptualized as *pro-environmental self-identity*. Sparks and Shepherd (1992), investigated the role of individuals' self-identity as green consumers in relation to consumption of organically produced vegetables, within the context of the TPB framework. They found that self-identity not only had an impact on attitudes, but also had an independent effect on behavioural intentions. More recently, Whitmarsh and O'Neill (2010) found that pro-environmental self-identity was significant in determining intentions for carbon offsetting behaviour even over and above other TPB variables.

Values

Another relatively stable psychographic characteristic of the individual are his or her values. Hoyer and MacInnis (2008) define values as *"enduring beliefs regarding what is right, important, or good"* (p. 356). Several researchers have examined the impact of value orientation upon pro-environmental behaviour, and the results have been fairly consistent in that values are indeed determinant to such behaviour (Fransson and Gärling, 1999). Some specific values that have been found to be positively related to pro-environmental behaviour are *universalism, self-transcendence* and *openness to change*. Values that have been found to be negatively related to pro-environmental behaviour include *power, tradition*, *conservation* and *self-enhancement* (Van Kasteren, 2008).

A set of values that has been extensively applied in a range of research areas, are Hofstede's five cultural dimensions (Hofstede, 1980). Some researchers have investigated these values in the context of pro-environmental behaviour. For example, concerning the collectivism-individual dimension, McCarty and Shrum (1994) and Triandis (1993) argue that people with a collective value orientation tend to be more environmentally friendly than people with an individualistic value orientation (cited in Cheah and Phau, 2011). More recently, Oliver and Lee (2010) found that the collectivism-individualism value had an impact on purchase intentions for hybrid cars.

Some researchers have also attempted to create a measure of a pro-environmental value, such as the *New Environmental Paradigm (NEP)* scale which is intended to indicate whether individuals consider the environment or nature to have intrinsic or extrinsic value (Dunlap et al., 2000; Dunlap, 2008). Nevertheless, Whitmarsh and O'Neill (2010) found that the NEP scale could not predict any pro-environmental behaviour components.

Finally, values influence behaviour in a values-attitudes-behaviour hierarchy (Homer and Kahle, 1988). This implies that values have an impact on attitudes, which in turn influence behaviour. This is somewhat inconsistent with Ajzen's (1991) TBP framework, which states that values influence behaviour through normative beliefs which again determine the subjective norm. However, being the next step in the hierarchy or not, I will now proceed to a discussion of attitudes.

Attitudes and beliefs

An attitude can be defined as *"a relatively global and enduring evaluation of an object, issue, person or action"* (Hoyer and MacInnis, 2008, p.499). The literature contains a vast number of studies examining how attitudes relate to pro-environmental behaviour (Hines et al., 1987). Many studies have indeed identified significant correlations between attitudes towards the environment and environmentally friendly products, and purchase intentions and behaviour (Cheah and Phau, 2011). Two of the most studied groups of attitudes related to pro-environmental behaviour, center around consumers' perception of *importance* and *inconvenience* of being environmentally friendly (Cheah and Phau, 2011; Laroche et al., 2001).

Importance

Amyx et al. (1994) define perceived importance regarding the environment, as *"the degree to which one expresses concern about ecological issues"*. (cited in Cheah and Phau, 2011, p.455). The concept of importance has many names and definitions, but mostly it goes under the name *environmental concern.* However, most findings have shown that the relationship between environmental concern and purchase of environmentally friendly products is either non-significant or weak (Follows and Jobber, 1999). For example, Mainieri et al. (1997) found that general environmental concern could not predict any green-buying behaviours. Nevertheless, some studies have identified that a general environmental concern influences other, more specific attitudes and personal norms related to environmental issues (Fransson

and Gärling, 1999). Such specific attitudes toward environmental behaviours tend to show a higher attitude-behaviour correlation than general environmental attitudes (Hines et al., 1987).

Inconvenience

Inconvenience refers to the degree to which an individual perceives behaving in an environmentally friendly fashion is inconvenient. Empirical studies have shown that the greater the perceived inconvenience of a certain behaviour, the less people will engage in that behaviour (Cheah and Phau, 2011). For example, McCarty and Shrum (1994) studied the interaction between importance and inconvenience on recycling behaviour. They found that the more an individual found recycling to be inconvenient, the less likely he or she was to recycle. In addition, no matter how important an individual believed recycling to be, perceived inconvenience of the recycling activity had a stronger impact on his or her actual behaviour.

Self-efficacy

According to Webster (1975) *"a socially conscious customer feels strongly that he/she can do something about pollution and tries to consider the social impact of his/her buying behaviour"* (cited in Laroche et al., 2001, p.507). This implies the notion of self-efficacy; in order to engage in a given pro-environmental behaviour, a consumer must believe that by performing the behaviour he or she can effectively make a difference in improving the quality of the environment. Heath and Gifford (2006) indeed found individuals' belief that their efforts could make a difference in reducing global warming, to be the strongest predictor of behavioural intention. In contrast, several studies have found people having a negative perception of their individual contribution, to be less likely to demonstrate pro-environmental behaviour (Cheah and Phau, 2011). Some researchers also refer to the concept of self-efficacy as perceived consumer effectiveness (PCE) (Cheah and Phau, 2011). Ellen et al. (1991) defines the construct as *"a domain-specific belief in that the efforts of an individual can make a difference in the solution to a problem"* (p.103). They found PCE to be associated with higher likelihood of purchasing ecologically safe products, engaging in recycling, and contributing to environmental groups, as well as to be interacting with attitudes toward and perceived knowledge of environmental issues. Similarily, Berger and Corbin (1992) find support for their hypothesis that PCE moderates the strength and slope of the relationship between attitudes and consumer behaviour. They argue that PCE clearly

influences an individual's intention to act on his or her concerns for the environmental in the consumer marketplace.

Moreover, the concept of self-efficacy is similar to that of locus of control, which refers to whether individuals perceive the power of changing the state of the environment lies in the hands of individuals (internal control) or larger societal institutions (external control). People with an internal locus of control have found to be more likely to believe that their individual actions with respect to the environment can make a difference (McCarty, and Shrum, 2001). It can thus be assumed that consumers with an internal locus of control are more likely to engage in pro-environmental behaviour.

Emissions-efficacy

In addition to believing that his or her individual behaviour can make a difference, an individual must also believe that the specific action he or she is undertaking is effective in reducing environmental damage. Such efficacy beliefs are also referred to as *outcome expectancy*, which can be defined as *"a person's estimate that a given behaviour will lead to certain outcomes"* (Bandura, 1977, p. 193). Indeed, Truelove and Parks (2012) found beliefs that a given behaviour mitigated global warming to be strongly related to intentions to perform that behaviour. Thus, if the main motivation to purchase an environmentally friendly product originates in a desire to contribute positively to the environment, the consumer must also believe that the product has the ability to do so.

Perceptions of importance, inconvenience, self-efficacy and emissions-efficacy fall into the category of background factors *general attitudes* in the TPB model. These may influence the formation of *behavioural beliefs*, which in turn are important in forming the basis for attitudes toward the behaviour (Ajzen, 1991).

2.3.2 Social factors

Norms

The antecedents of pro-environmental behaviour mentioned so far mainly relate to internal characteristics of the individual. However, factors related to the social environment of the consumer may also play an important role in guiding behaviour. One stream of research, with has its origins in Schwartz's (1977) norm-activation model, takes the view that pro-environmental behaviour is primarily motivated by *personal-* and *social norms* (Bamberg

and Möser, 2007). Rooted in values, social norms are usually built upon the values of the individual's culture. However, as opposed to values, which implicitly guide behavioural intention, norms provide more explicit directions for behaviour.

Several empirical studies have confirmed the influence of norms on pro-environmental behaviour (Fransson and Gärling, 1999). For example, Hopper and Nilsen (1991) found that consumer's recycling is affected by social norms, personal norms, and awareness of the consequences of recycling, and a study by Oskamp et al. (1991) found that the degree of recycling by friends and/or neighbours affected consumer's recycling behaviour (cited in Fransson and Gärling, 1999). Like recycling, consumer's purchase of environmentally friendly products is a pro-environmental behaviour, and can therefore be expected to be equally influenced by social norms. Indeed, in a study on consumer's adoption of environmentally friendly innovations, Jansson (2010) found that early adopters of alternative fuel vehicles exhibited higher levels of personal and social norms. Oliver and Lee (2010) also found a positive relationship between the social value associated with owning a hybrid car and purchase intention.

Norms are important in the process of forming *normative beliefs*, which subsequently form the basis for the *subjective norm* in the TPB model (Ajzen, 1991).

2.3.3 Information factors

Media and advertising

Another external factor that can influence pro-environmental behaviour is the influence of media and advertising, which falls into the category of *information factors* in the TPB model. In study upon the media's agenda-setting of environmental issues, Atwater et al. (1985) found that 83% of the respondents obtained information about environmental issues through various sources of mass media, including TV, magazines, radio, and newspapers. As identified earlier, people's knowledge and attitudes towards environmental issues can in turn influence behaviour. It is therefore reasonable to assume that the media can have an impact on pro-environmental behaviour. Holbert et al. (2003) indeed found that watching television news and nature documentaries contributed to pro-environmental behaviours. Moreover, Fisk (1959) found that media exposure is strongly correlated to consumers'

purchase decisions. It can therefore be expected that the media also has an influence on consumers' purchase of environmentally friendly products.

Nevertheless, what might have a more direct impact on pro-environmental purchase behaviour is *green advertising.* Banerjee et al., (1995) define green advertising as any ad that *"explicitly or implicitly addresses the relationship between a product/service and the bio-physical environment, promotes a green lifestyle with or without highlighting a product/service, or presents a corporate image of environmental responsibility"* (p.22). In the following however, I will focus on the first type of green advertising, which aims to persuade consumers about a product's positive impact on the environment and to purchase it, by emphasising environmentally friendly or 'green' features. I find this the most commonly used type of advertising to promote electric cars, as ads for electric cars often stresses the cars positive impact on the environment. However, in order to understand how green advertising influences attitudes and purchase intentions for electric cars I will now turn to the advertising literature.

2.4 Advertising's influence on attitudes and purchase behaviour

If it had not been common knowledge that ads can influence purchase behaviour, companies would not be spending billions a year on advertising. Advertisements are generally aimed at increasing purchase intentions through generating favourable attitudes toward the product or brand being advertised. Indeed, as stated by You et al. (2013); *"A positive attitude toward a product – liking, could be used to predict consumer behaviour, such as purchase intentions*" (p. 225). Similarly, Lutz et al., (1983) found that attitude toward the brand affected brand purchase intentions.

However, ads can also indirectly create positive attitudes through a process whereby liking of or a positive *attitude toward the ad* itself, spill over on the product or brand (Hoyer and MacInnis, 2008). Lutz (1985) defines attitude toward the ad as *"a pre- disposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion"* (cited in MacKenzie et al., 1986, p.130). Indeed, Biel's (1990) famous study on U.S. prime-time commercials, suggested a positive correlation between ad likability and behaviour (cited in Vakratsas and Ambler, 1999). Moreover, in a meta-analysis of the antecedents and consequences of attitude toward the ad, Brown and

Stayman (1992), report significant empirical evidence for effects of attitude toward the ad upon purchase intention.

Specifically regarding the process by which attitudes influences purchase intention, Lutz et al. (1983) provide previous research findings that both attitude toward the ad and attitude toward the brand mediate the relationship between ad exposure and purchase intention. However, they also discuss four different models in which attitudes toward the ad also has different mediating effects on brand attitude. Of these four, MacKenzie et al., 1986), found support for the *"dual mediation hypothesis"* claiming that attitude toward the ad not only mediates the effect of ad exposure upon brand attitude directly, but also indirectly through its effect on brand cognitions which in turn influences brand attitude.

Once known that attitudes toward the product, the brand or the ad can affect purchase intentions, the interesting question is how to generate favourable attitudes. To get a better insight into this, it is useful to understand how different features of an ad can influence how attitudes are formed. Attitude formation can be either *cognitive-based* or *affect-based.* The type of attitude formation process taking place when an individual is exposed to an ad, is determined by the type of response the ad seeks to generate (Hoyer and MacInnis, 2008). This brings us to the concept of ad appeal.

2.4.1 Ad appeal

An ad feature that has been extensively studied in the marketing and advertising literature is that of *ad appeal.* The term ad appeal has mostly been used to distinguish between *rational* (also referred to as *informative* or *functional*) and *emotional* appeals, and probably originates from Copeland (1924) who propositioned that consumers have either a rational or an emotional reason to purchase a product (cited in Albers-Miller and Stafford, 1999).

Rational appeals are based on traditional, cognitive decision-making models. Such decision-making models assume individuals make perfectly logical and rational decisions by systematically processing information about a product or brand's attributes. Hence, rational appeals seek to persuade the consumer by providing rational reasons for buying the product or brand (Albers-Miller and Stafford, 1999). As argued by You et al. (2013), rational appeals therefore focus on the basic facts about a product. Finally, Kotler (2003) defines rational appeals as designed to appeal to consumers' self-interest by promoting the products

advantages. This could for instance be claims about a product's *"quality, economy, value or performance"* (Kotler, 2003, p. 502).

In contrast, Kotler (2003) defines *emotional appeals* as "*attempting to awaken either positive or negative emotions that motivate purchase"*. According to Albers-Miller and Stafford (1999), emotional appeals are intended to target the emotional and experiential aspects of consumption. *"They seek to make the consumer feel good about the product, by creating a likeable or friendly brand; they rely on feelings for effectiveness"* (Albers-Miller and Stafford, 1999, p. 44).

As emotional ad appeals are aimed at appealing to the audience's emotions, the primary response to advertising exposure is likely to be feelings, hence attitude formation is likely to be *affect-based*. As rational ad appeals are aimed at appealing to the audience's rationality, the primary response is likely to be evaluative thoughts about the ad's credibility, thus attitude-formation is most likely cognitive-based (Yoo and MacInnis, 2005). Nevertheless, when it comes to the effectiveness of one type of ad appeal over the other in influencing attitudes and purchase intentions, the academic literature has shown widespread and inconsistent results (You et al., 2013).

2.4.2 Findings about effectiveness of rational vs. emotional ad appeals

Several studies upon the effectiveness of rational relative to emotional ad appeals have produced results in favor of rational appeals. For example, Holbrook (1978) found that factual content was perceived to be more credible, and therefore resulted in more positive responses, suggesting that rational appeals that rely more on factual content generate more positive responses. Similarly, according to the findings of Ford et al. (1990) consumers are less skeptical to objective claims in advertising than to subjective ones. This suggests that consumers should demonstrate more positive attitudes toward rational appeals, which rely on objective claims, than toward emotional appeals, which rely on more subjective claims. Finally, Golden and Johnson (1983) found that *'thinking ads'* (i.e. rational ads) contained more information, and hence resulted in higher ad likability and purchase intentions, than emotional ads.

Nevertheless, other researchers have found emotional appeals to be more effective. For example, Goldberg and Gorn (1987) reported that emotional TV commercials lead to

generally more positive responses than informational ones, while Page et al., (1990) suggested that ad appeals that generate emotional responses result in more positive reactions (cited in Albers-Miller and Stafford, 1999). In a review article upon research on how advertising influences the consumer, Vakratsas and Ambler (1999) also found extensive empirical evidence that advertising need not necessarily be informative (i.e. rational) to be effective, and that including emotional elements could increase preference.

Albers-Miller and Stafford (1999) posits that emotional ad appeals may alleviate the abstractness around service offerings through creating tangible, emotional cues. Just like services, the rewards of using environmentally friendly products are often intangible to the consumer. Emotional appeals may therefore be more effective than rational appeals for green products. Indeed, several studies recommend the use emotional appeals in green marketing messages. For example, Pooley and O'Connor (2000) found affect to be of greater importance than information provision in generating pro-environmental attitudes. Similarly, Pickett-Baker and Ozaki (2008) argued that consumers might process emotional messages more thoroughly, and thereby remember them better than rational messages, suggesting emotional appeals to be more powerful when advertising for green products.

Specifically to green products, combining the two types of appeals have also been found to be superior to any appeal alone. For instance, Hartmann and Apaolaza-Ibáñez (2005) found that "*highest perceptual effects were achieved through a green positioning strategy that combined functional attributes with emotional benefits"* (p.9). In a more recent study (Hartmann and Apaolaza-Ibáñez, 2012), the same authors found that the effect of emotional ads on purchase intention was mediated by attitude toward the brand. Moreover, Matthes et al. (2013) also found that emotional and combined appeals had a significant influence on attitude toward the ad and attitude toward the brand. Rational appeals on the other hand, only had an impact when green involvement was high. In other words, green involvement moderates the effect of ad appeal. As they are effective for both types of consumers (i.e. both high- and low involvement), Matthes et al. (2013) argue that emotional green ads are more powerful than rational ones.

Although using a different dimension of ad appeal, Schuhwerk and Lefkoff-Hagius (1995) also found the respondent's involvement with the environment interacted with ad appeal. They found that 'green appeals' were more persuasive than 'non-green appeals' for the low-

involvement group, whereas there were no significant differences between the two appeals for the high-involvement group. This suggests that marketers can use green appeals to persuade both consumers that are highly involved with the environment and those less involved.

The contradicting research findings on what is most effective of rational and emotional appeals is most likely due to factors moderating the effect of ad appeal. As shown by Matthes et al. (2013) and Schuhwerk and Lefkoff-Hagius (1995), one such factor is involvement. I will therefore now address two types of involvement that may moderate the effect of ad appeal.

2.4.3 The moderating effect of involvement

Involvement can be defined as *"an unobservable state of motivation, arousal, or interest*" (Rothschild, 1984, p. 127). Consumers who are highly involved with a certain product category can therefore be expected to demonstrate elevated motivation, arousal or interest in an advertisement for a product within that category, than those less involved.

The Elaboration Likelihood Model (ELM), a dual-processing model of persuasion, developed by Richard Petty and John Cacioppo (1981a), addresses the role of involvement, or *personal relevance*, in relation to information processing. The ELM posits that how an individual processes a message depends on his or her involvement with the issue presented. Petty and Caioppo (1981b) found that when a persuasive message was of high personal relevance, the effectiveness of the appeal was more contingent on the quality of the arguments presented than on peripheral cues. On the contrary, in the case of low personal relevance, peripheral cues were more important than the arguments presented.

Vakratsas and Ambler (1999) emphasize the importance of involvement as a moderator of advertising effects. More specifically, Holbrook and O'Shaughnessy (1984) mention the consumer's level of involvement as a moderating variable of the relative effectiveness of rational or emotional advertising appeals on attitude toward the ad. The main type of involvement studied in relation to advertising is involvement with the product category. In relation to green advertising, also consumer's involvement with the environment has been investigated. I will now discuss these in turn.

Moderating effect of product category involvement

In line with the ELM, Vakratsas and Ambler (1999) suggest that involvement with the product determines the consumer's degree of motivation to process an ad. As a consequence, consumers highly involved with the product will engage in more elaborate processing than those less involved. Since consumers low on product involvement engage in less elaborate information processing, the authors further recommend that advertising messages to target this group of consumers should emphasize peripheral, emotional cues rather than factual product information. Moreover, Dens and De Pelsmacker (2010) studied the interaction between product category involvement (low and high) and ad appeal (informational, positive emotional and negative emotional) on consumers' attitudes towards the product, attitude towards the (parent) brand and purchase intention. They found that the type of advertising appeal had a significant effect on attitude towards both the product and brand as well as purchase intention, and that this effect was moderated by product category involvement; informational appeals performed better in high product category involvement conditions, while positive emotional appeals scored better in the low-involvement conditions.

Moderating effect of green involvement

According to Hartmann and Apaolaza-Ibáñez (2005), involvement with the environment is considered a fundamental moderator of attitude formation in processing of green advertisements. For instance, Matthes et al., (2013) used a three-dimensional measure of green involvement, composed of *environmental concern, attitudes toward green products,* and *actual green purchase behaviour*, and tested its moderating effect upon ad appeal. However, for emotional- and mixed-type appeals they found that green involvement had no significant impact. For functional appeals on the other hand, the effect upon brand attitudes was only significant when involvement, either in the form of green purchase behaviour or green product attitudes, was high. The explanation provided by Matthes et al. for this finding is in line with the ELM; *"People that like or frequently buy green products are more motivated to process the arguments that are displayed in the ad. A careful processing of ad arguments, in turn, increases the liking of the ad, which in turn, influences brand attitudes."* (p.6). The authors found no significant impact of environmental concern however, neither for the functional, emotional nor the combined ads.

2.4.4 Additional message and message framing

Ha (1998) argues that emotional appeals need to be supported by "objective reality", which is equivalent to rational messages. She suggests combining visual, emotional content with rational text as a way to do this (Ha, 1998). This suggests that emotional appeals should be complemented with an additional, rational message. However, including an additional message raises the question of how and what this message should communicate. This brings us to the concept of *message framing*.

Positive vs. negative framing

The term message framing is mostly used to distinguish between positive (or gains) framing and negative (or losses) framing. Positively framed messages depict the positive consequences (i.e. gains or benefits) of performing a particular behaviour. Negatively framed messages on the other hand, depict the potential negative consequences (i.e. losses) of not engaging in the behaviour (White et al., 2011).

Homer and Yoon (1992) investigated the interrelationships among ad-induced affective and cognitive responses, message framing, attitude toward the ad, brand attitudes, and purchase intentions. They found that feelings (affective responses) had a significant impact on brand attitudes regardless of message framing, but that brand-related thoughts (cognitive responses) had a greater impact on brand attitudes when the message framing was negative. Davis (1995) also found that the choice of gains- or loss-framing of environmental communication influenced attitudinal responses and subsequent intentions to perform pro-environmental behaviour. Similarly to Homer and Yoon (1992), the results of Davis (1995) study showed that negative message framing was more effective in relation to environmental communication than positive framing.

However, White et al. (2011) argue that negative framing is more persuasive than positive framing only in cases where consumers demonstrate high involvement with the issue presented in the message. Moreover, they study the role of message framing in conjunction with construal level in influencing consumer efficacy and conservation behaviours. Their main finding is that messages framed as gains are more effective when paired with high-level, abstract mind-sets, than with low-level, concrete mind-sets. This suggests that messages framed as gains, should be combined with emotional content, which has a higher construal level than more concrete, factual arguments.

Environmental vs. non-environmental (personal) benefit framing

Matthes et al. (2013) combined an emotional appeal with rational statements about the products environmental benefits in one of their ads. This ad indeed exerted the largest impact on brand attitudes. Furthermore, in their study upon green marketing messages and consumers' purchase intentions, Grimmer and Woolley (2012) found that participants with high environmental affect demonstrated greater purchase intention for the message emphasizing an environmental benefit. However, those low on environmental affect demonstrated greater purchase intention when a personal benefit message was used. Put the other way around, if focusing on personal benefits, consumers highly involved with the environment are therefore likely to show lower purchase intentions. Two probable explanation of this, which is overlooked by Grimmer and Wooley (2012), can be provided by *attribution theory* and *identity theory*.

Firstly, according to attribution theory *"the individual will attribute observable events to their underlying causes on the basis of covariation of cause and effect"* (Settle and Golden, 1974). Attribution has been widely studied in relation to corporate social responsibility (CSR) communication, and according to Bhattacharya and Sen (2010) *"stakeholders' attribution of a company's CSR motives may be of two kinds: extrinsic, in which the company is seen as attempting to increase its profits; or intrinsic, in which it is viewed as acting out of a genuine concern for the focal issue."* (Bhattacharya and Sen, 2010, p.9). Similar to with CSR messages, with green advertising companies often aim to persuade consumers that the company is genuinely concerned about the environment. However, consumers, especially those highly involved with the environment, may question the advertisers motives of taking on a green positioning, and attribute the firm's green efforts to an attempt to increase its own profits, rather than to a genuine care for the environment. Indeed, Cotte et al. (2005) found that when consumers recognized manipulative tactics within an advertisement, they respond negatively and the advertisement loses its intended effect. Advertising personal or non-environmental benefits may therefore have adverse effects on attitudes and intentions.

Secondly, according to *identity theory*, products are often used as a means of self-categorization to a social group (Stets and Burke, 2000). By purchasing green products, some consumers hence seek to categorize themselves within a group of green consumers. If an ad is focusing on a personal benefit, it reveals that there are other motives for buying the

product than its environmental benefits. Green consumers may therefore respond negatively to such ads, as the personal benefit motive weakens the products ability to strengthen their social identity as a green consumer.

The above-mentioned paradox makes it difficult for marketers to choose which type of benefits to emphasize, in order to target both consumers that are highly involved with the environment as well as those less involved. A solution might therefore be to combine an environmental message with personal benefits.

2.5 Summary of the literature reviewed

The above reviewed literature stems from three main areas of research; Consumer Psychology, Environmental Psychology and Consumer Marketing, as summarized below:

Figure 2: Areas of research examined

Consumer Psychology:
The Theory of Planned Behaviour
(Chapter 2.2)

Environmental Psychology:
Determinants of pro-environmental behaviour
(Chapter 2.3)

Consumer Marketing: *Ad appeal, message framing*
(Chapter 2.4)

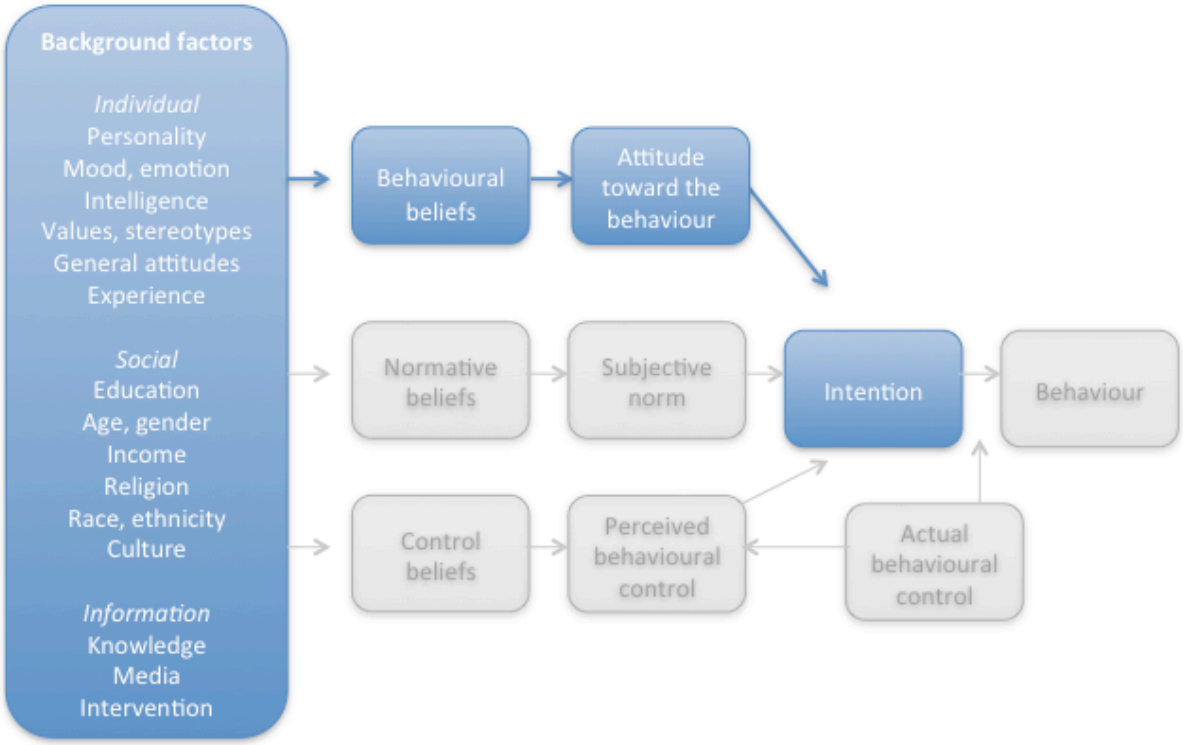
In the next section a research model for each of the two research questions will be elaborated using elements from all three streams of research, in an attempt to fill the identified gaps in the literature.

2.6 Research models and hypotheses

The previously discussed TPB framework by Ajzen's (1991) seems an appropriate theoretical framework for this thesis. For the purpose of this thesis however, it would be too extensive to examine all the elements of the TPB. In addition, in their meta-analysis, Bamberg and Möser (2007) found that attitudes had a stronger correlation with both behavioural intentions and behaviour, than the social norm and PBC. The authors also argue that empirical studies applying the TPB often find that the social norm exerts no direct effect on behavioural intention after controlling for the effects of attitudes and PBC. Moreover, Withmarsh and O'Neill (2010) who used a standard TPB model to predict behavioural intentions for carbon-offsetting, found that attitudes was the only significant predictor of behavioural intentions, whereas the subjective norm and perceived behavioural control were both non-significant variables.

The above suggests that attitudes are more important in predicting pro-environmental behavioural intentions, than the other elements of the TPB. In my research I will therefore focus on the attitude path to behavioural intentions. Actual behaviour will not be examined since this is not necessary for the purpose of the study, and is often difficult to measure. Regarding the background factors, I found characteristics of the individual such as personality traits and general attitudes, to be the most prominently studied determinants of pro-environmental behaviour in the existing literature. I will therefore focus on how factors in this category as well as advertising, which falls into the third category, information, influence attitudes and subsequent intentions to purchase an electric car. This is summarized in **Figure 3,** which illustrate the scope of the study:

Figure 3: Scope of study



Focusing on the attitude path to purchase intention, the first aim of this thesis is to examine how advertisements as a background factor can influence attitudes and subsequent purchase intentions. The second aim is to examine how characteristics of the individual such as personality traits and general attitudes, influences the relationship between exposure to different types of advertisements and attitudes. Therefore, the two main research questions for this thesis are as follows:

RQ1: What type of advertisement is most effective in influencing attitudes and purchase intentions towards electric cars?

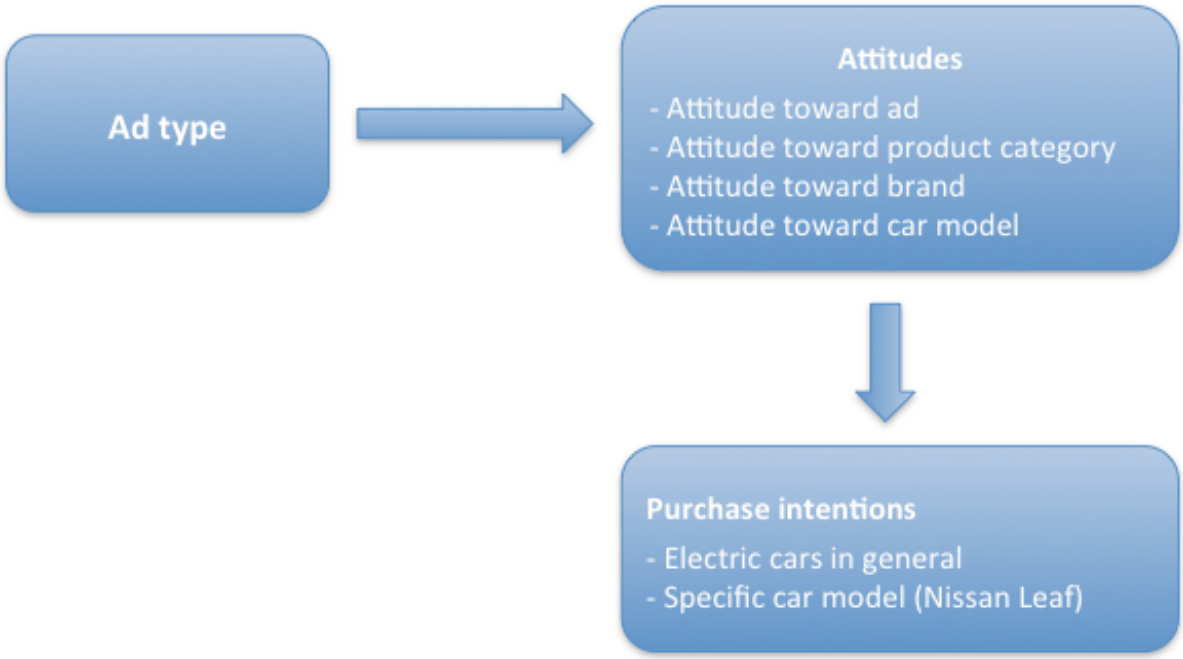
RQ2: What factors influence the relationship between advertisement type and attitudes towards electric cars?

A research model and corresponding hypotheses for each research question will be elaborated in turn below.

2.6.1 RQ1: Model and hypotheses

In response to the first research question, upon what ad type is most effective in influencing attitudes towards electric cars and generate subsequent purchase intentions, a research model for RQ1 is elaborated below. The independent variable is advertisement type. Attitudes (toward ad, the product category, the brand, and the specific car model) represent the mediator variables and purchase intentions (for electric cars in general and a specific car model) represent the dependent variables. The research model is illustrated in **Figure 4**:

Figure 4: Research model RQ1



Dependent variables

In this model, purchase intentions for the product category in general and purchase intentions for a specific car model (the Nissan Leaf) represent the dependent variables. The reasoning behind using purchase intention as the dependent variable is that it provides a good indication of whether an ad is successful in driving demand. The path from attitudes to purchase intention is based on the attitude-intention-behaviour logic of the TBP, as well as the finding of Brown and Stayman (1992) that attitudes toward the ad affects purchase intention, and that of You et al. (2013) that positive attitudes toward a product can predict purchase intention. Finally, the reasoning behind structuring the relationship between ad

type, attitudes and purchase intention as a mediation relationship is based on the findings of Lutz et al., (1983) that both attitudes toward the ad and attitude toward the brand mediate the effect of ad exposure upon purchase intention, and that of Hartmann and Apaolaza-Ibáñez (2012) that the effect of emotional ads on purchase intention was mediated by attitude toward the brand. Although MacKenzie et al. (1986), also found support for the *"dual mediation hypothesis"* that attitude toward the ad mediates the effect of ad exposure upon brand attitude directly as well as indirectly, I will for simplification reasons in my model only focus on the independent mediation effects of attitude toward the ad and the brand on purchase intention.

Independent variables

The main independent variable consists of advertisement type, which in turn has two different dimensions. Regarding the choice of the first dimension, ad appeal, the distinction between rational and emotional appeals was identified in the literature as the most commonly studied conceptualization of ad appeal. Moreover, the research findings by Hartmann and Apaolaza-Ibáñez (2005) and Matthes et al. (2013) suggested that for green products, emotional and combined appeals were more effective than rational appeals. It could be interesting to see whether the conclusions drawn from these studies, also hold for electric cars.I will therefore use the dimension ad appeal, i.e. rational or emotional, as the first dimension of ad ad type.

Secondly, following Ha (1998) that emotional appeals had to be supported by rational messages to be effective, I will also add a rational, non-environmental message in two of the ads which constitutes the second dimension of ad type, i.e. without or with an additional message. The choice of a non-environmental message is based on the finding by Grimmer and Wooley (2012) that consumers who are less involved with the environment respond better to ads presenting a personal benefit than when an environmental benefit is used. Thus to also appeal to this group of consumers, a message demonstrating a personal, non-environmental benefit of driving the car is added. The combination of these two dimensions results in four different types advertisements; a rational ad, an emotional ad, a rational ad with an additional message, and an emotional ad with an additional message. In my model advertisement type represents exposure to one of these four types of advertisements.

Mediating variables

Following the logic of Ajzen's (1991) theory of planned behaviour, as well as the research findings mentioned above of Brown and Stayman (1992) and You et al. (2013) that attitudes influences purchase intentions and those of Lutz et al. (1983), Hartmann and Apaolaza-Ibáñez (2012) and MacKenzie et al. (1986), about the mediating influence of attitudes on purchase intentions, attitudes are included as a mediator variable of the relationship between advertisement type and purchase intentions. Three different attitudinal variables are included based on the attitudes influencing purchase intentions that where identified in the literature; attitude toward the ad, attitudes toward the brand, and attitude toward the product, which is represented by attitude toward the car model. In addition, I find it purposeful to also examine the general attitude toward the product category electric cars, hence attitude toward the product category is also added.

2.6.2 Hypotheses H1-H4

Although research findings were inconsistent regarding the relative effectiveness of rational and emotional appeals in general, researchers seem to agree to a greater extent on this issue when it comes to environmentally friendly products. The findings by Pooley and O'Connor (2000) showed that affect had greater importance than information provision in generating pro-environmental attitudes. Moreover, Pickett-Baker and Ozaki (2008) claim that consumers might process emotional messages more thoroughly, which produces more positive responses and causes the consumers to remember them better than rational messages. It is reasonable to assume that this also applies to advertising messages for electric cars. As shown by Hartmann and Apaolaza-Ibáñez (2012) and Matthes et al. (2013), nature experiences such as beautiful scenery, green vegetation and clear blue water is associated with positive feelings (e.g. happiness and satisfaction). According to Kollmuss and Agyeman (2002) on the other hand, when people are faced with the effects and long-term implications of environmental damage, they can experience negative feelings (e.g. fear, sadness, pain, anger and guilt). This indicates that people's concerns about the environment are about feelings, rather than rational thinking, suggesting that emotional appeals are more effective than rational appeals when advertising for electric cars. Hence the plain emotional ad should perform better than the plain rational ad.

Regarding the ads with an additional, non-environmental message, White et al. (2011) found that gain-framed messages were more effective and lead to higher pro-environmental behavioural intentions, when paired with high construal level, abstract mind-sets. This suggests that message framed as gains, should be used in combination with emotional ads, as emotional ads have a higher construal level than rational ads which are more concrete. As the additional message included in the advertisements of this study is framed as a gain (i.e. cost savings on fuel), it can thus be expected to have a more positive effect upon attitudes when combined with the emotional ad, than with the rational condition. Hence, also when containing an additional, non-environmental message, the emotional ad should perform better than the rational ad.

Based on the above I make the following hypothesis:

H1: Emotional ads are more effective in producing positive attitudes toward a) the ad b) the product category c) the brand and d) the car model, compared to rational ads

Moreover, more recent research showed that specifically to environmentally friendly products, combining the two types of appeals is superior to any ad appeal alone. Hartmann and Apaolaza-Ibáñez (2005) found that the most effective strategy was to combine functional attributes with emotional benefits. Similarly, Matthes et al. (2013) also found that emotional and combined appeals had a significant influence on attitude toward the ad and attitude toward the brand, and Ha (1998) argued that emotional appeals had to be supported by rational messages to be effective. The additional, non-environmental message used in two of the ads in this study, is a rational one (i.e. cost savings on fuel). Based on the above findings, the emotional ads with the additional message should perform better than the plain emotional ads. In other words, adding a rational, non-environmental message should enhance the performance of the emotional ads:

H2: Emotional ads are more effective in producing positive attitudes a) the ad b) the product category c) the brand and d) the car model, when a rational, non-environmental message is added

Finally, based on Ajzen's (1991) theory of planned behaviour, and the many research findings that attitudes influence purchase intentions (e.g. Brown and Stayman (1992) and You et al. (2013) it is reasonable to assume that ad type has an indirect effect on purchase

intentions through attitudes. Indeed, Lutz et al., (1983) report that attitudes toward the ad and toward the brand mediate the effect of ad exposure upon purchase intention. Also, Hartmann and Apaolaza-Ibáñez (2012) found that brand attitude mediated the effect of advertisements for a green energy brand upon purchase intentions. Attitudes can thus be expected to moderate the relationship between ad type and purchase intentions. I thereby make the following hypothesis:

H3: Attitudes toward a) the ad b) the product category c) the brand and d) the car model, mediate the effect of ad type upon purchase intentions for electric cars in general

Based on the above-mentioned logic of the theory of planned behaviour and research findings, the same should also apply to the specific car model, the Nissan Leaf, as to electric cars in general. Thus I also hypothesize that:

H4: Attitudes toward a) the ad b) the product category c) the brand and d) the car model, mediate the effect of ad type upon purchase intentions for the Nissan Leaf

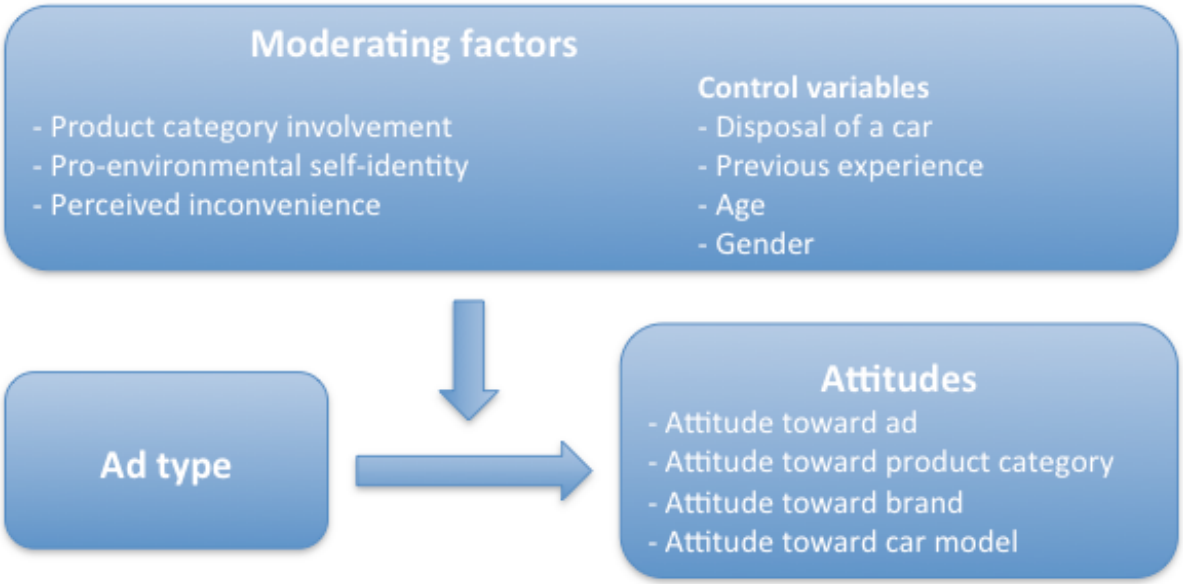
All the above hypotheses will be tested empirically in Chapter 4.6.

2.6.3 RQ2: Model and hypotheses

In response to the second research question, namely what factors influence the relationship between the type of ad and consumer's attitudes towards electric cars, a research model is elaborated below. The independent variable is as in RQ1 ad type. In this model however, the focus is on attitudes only as the dependent variables. The moderating factors in the model are based on selected factors identified in the literature that I find relevant to electric cars. Moreover, four control variables, disposal of a car, previous experience with electric cars, age and gender are also included as moderators.

Based on the theory of planned behaviour and the literature reviewed, the research model for the second research question is thus as follows:

Figure 5: Research model RQ2



Dependent variables

The dependent variables in this case are only attitudinal variables. While the focus of RQ1 was to examine how purchase intentions were affected by advertisement type through attitudes, the focus here is to examine what factors moderate the relationship between advertisement type and attitudes. Ideally, to follow the logic of the TPB framework consistently, purchase intentions should be included in the model. However, when moderators are included this would create a very complex picture, requiring structural equation modelling (SEM) to be applied. I will therefore focus on attitudes in this model. The same attitudes as in RQ1 will be studied, thus the theoretical rationale for using these variables will not be repeated here.

Independent variable

The independent variable for this model is also the same as for RQ1, namely advertisement type. The description of this variable will therefore not be repeated here.

Moderating factors

Several factors were identified in section 2.3 of the literature review, that influence intentions to perform pro-environmental behaviours. However, although most of these have a direct impact on attitudes and/or behavioural intentions it is reasonable to assume that these factors also will play a role for how different ad types influence attitudes. In the following, I will therefore describe factors found to influence pro-environmental behavioural intentions

that I believe also may impact the relationship between ad type and attitudes, as well as provide a rationale for choosing these factors.

Product category involvement

Product category involvement has been found to have impacts for the effectiveness of different ad appeals (Vakratsas and Ambler, 1999). In line with the Elaboration Likelihood Model (ELM), how an individual processes a message depends on his or her involvement with the issue presented (Petty and Caioppo, 1981a). According to the ELM when a persuasive message was of high personal relevance, the effectiveness of the appeal was more contingent on the quality of the arguments presented than on peripheral cues, while when of low personal relevance, peripheral cues were more important than the arguments presented (Petty and Caioppo (1981b). It might therefore be that rational appeals, which rely more on factual arguments, are more effective for consumers who are highly involved with the product category, whereas emotional appeals that rely more on peripheral cues are more effective for those less involved.

Moreover, Dens and De Pelsmacker (2010) found empirical evidence for that product category involvement significantly moderated the effect of ad appeal (informational, positive emotional and negative emotional) on consumers' attitudes towards both the product, and the parent brand and purchase intention. Their finding was that informational appeals performed better in high product category involvement conditions, while positive emotional appeals scored better in the low-involvement conditions. Based on the above findings, I find it highly relevant to include product category involvement as the first moderator in my model.

Pro-environmental self-identity

As identified in section 2.3.1, a personality trait influencing environmentally friendly purchase behaviour is *pro-environmental self-identity* (hereafter PESI). Sparks and Shepherd (1992) investigated the role of individuals' self-identity as green consumers within Fishbein and Ajzen's TPB framework, and found that the effect of self-identity is not only mediated through attitudes, but also has an independent effect on behavioural intentions. Moreover, Whitmarsh and O'Neill (2010) found that PESI was significant in determining intentions for carbon offsetting behaviour even over and above other TPB variables. A few studies examine the effect of *green involvement* or *environmental affect* in an advertising context. Both these two concepts can be considered similar to PESI as they are based on self-reported

measures and thus give an indication of the extent to which the consumer considers herself as someone who is involved with the environment. Matthes et al. (2013) found that functional (i.e. rational) ad appeals were more powerful when consumers scored high on *green purchase behaviour* or *green product attitudes* (two of the elements representing their conceptualization of green involvement). Finally, Grimmer and Woolley (2012) found that people with low environmental affect (low green involvement) showed higher purchase intentions for ads presenting a personal benefit message over ads presenting a pure environmental benefit message. In contrast, for consumers with high environmental affect (high green involvement) the effects of ads with a pure environmental benefit message were stronger compared to those with a personal benefit message.

Moreover, cars is a typical product that is used as a symbol to demonstrate one's status or identity (Hoyer and MacInnis, 2008). In line with identity theory (Stets and Burke, 2000), it is hence essential that ad an presents a car in such a way that the consumer feels that it is coherent with and strengthens his or her social identity. It it is thus reasonable to assume that like green involvement, PESI will influence the attitudes resulting from exposure to different advertisements for electric cars. I will therefore include PESI as a moderating variable in my model.

Perceived inconvenience

A third factor identified in the literature on pro-environmental behaviour is that of *perceived inconvenience*. Perceived inconvenience of performing a behaviour has been found to be negatively related to behavioural intention (e.g. McCarty and Schrum, 1994). In this case, perceived inconvenience will relate to the behaviour of using the product, i.e. the consumer's perception of the inconvenience associated with driving an electric car. Indeed, according to Byrne and Polonsky (2001), are electric cars associated with some degree of inconvenience over conventional cars, like for instance a shorter driving range before refuelling. Again, it is therefore reasonable to assume that perceived inconvenience might influence an ad's ability to persuade the consumer to purchase an electric car. Perceived inconvenience will therefore be included as a moderator as well.

Control variables

Finally, three control variables are included, representing factors which I believe might play an important role for the extent to which an advertisement influences attitudes. Firstly, one such factor is whether the consumer has a car at his or her disposal. If the consumer does not dispose a car, but is on the lookout for one, he or she might demonstrate more positive attitudes than someone who already disposes a car and who is not interested in purchasing a new car at the moment.

Secondly, the consumer's previous experience with electric cars might play a role for the ad's ability to influence his or her attitudes. Someone who has no previous experience is likely to have fewer established attitudes before-hand, than someone who has a lot of previous experience with electric cars. Previous experience is also likely to cause the consumer to be more familiar with the product category electric cars, and it is therefore likely to influence the relationship between ad type and attitudes in the same way as product category involvement.

Finally, age and gender are two very commonly used control variable in academic research. Regarding age, it might be that age is correlated with disposal of a car and/or previous experience with electric cars, as older consumers are more likely to dispose a car or have tried driving an electric car. I therefore find it purposeful to include age as a control variable. Regarding gender, Rota-Biadici and Domeniconi (2009) argue that women have different choice criteria than men when it comes to electric cars. They state that men tend to choose cars based on emotions, while women, take on a more rational approach looking at all possible advantages and disadvantages of the alternatives. The authors further recommends that the marketing mix (including advertisements) therefore need to be adapted so as to appeal to women. It is thus likely that gender has an impact on the relationship between ad type and attitudes. I therefore find it interesting to include gender as a control variable. Although being control variables, disposal of a car, previous experience, age group and gender will be tested for in the same way as the other moderating variables in the analysis.

2.6.4 Hypotheses H5-H12

According to the Elaboration Likelihood Model (ELM), when a persuasive message was of high personal relevance, the effectiveness of the appeal was more contingent on the quality of the arguments presented than on peripheral cues (Petty and Caioppo, 1981b). On the contrary, in the case of low personal relevance, peripheral cues were more important than the arguments presented. Although several factors are influencing motivation, ability and opportunity to process an ad (Hoyer and MacInnis, 2008), those who are highly involved with the product category, other things equal, will normally process the ad more thoroughly than those less involved. It might therefore be that rational appeals, which rely more on factual arguments, are more effective for consumers who are highly involved with the product category, whereas emotional appeals that rely more on peripheral cues are more effective for those less involved. Indeed, Dens and De Pelsmacker's (2010) found that informational appeals performed better in high product category involvement conditions, while positive emotional appeals scored better in the low-involvement conditions. Based on this, I make the following hypothesis:

H5: Rational ads will be more effective in producing positive attitudes toward a) the ad b) the product category c) the brand and d) the car model, for those highly involved with the product category, compared to those less involved with the product category.

As for product category involvement, rational appeals should according to the ELM be more effective for consumers who are highly involved with the environment, whereas emotional appeals should be more effective for those less involved. Recalling the finding by Matthes et al. (2013), functional (i.e. rational) ad appeals were more powerful when consumers scored high on *green purchase behaviour* or *green product attitudes* (two of the elements representing green involvement). In line with the ELM, the explanation provided by Matthes et al. for this finding was that people who score high on these two variables are more motivated to process the rational arguments presented in the ad, leading to more positive attitudes. As PESI can be considered similar to green involvement, it can thus be expected that PESI will show similar effects on the relationship between ad type and attitudes. I therefore make the following hypothesis:

H6: Rational ads will be more effective in producing positive attitudes toward a) the ad b) the product category c) the brand and d) the car model, for those scoring high on PESI, compared to those scoring low on PESI.

Moreover, Grimmer and Woolley (2012) found that participants with high environmental affect demonstrated greater purchase intention for the message emphasizing an environmental benefit, while those low on environmental affect demonstrated greater purchase intention when a personal benefit message was used. The additional message used in two of the ads of this study represents a non-environmental, personal benefit of driving the electric car, rather than its environmental benefits. It is thus reasonable to believe that the additional message will strengthen the ads' ability to persuade the low PESI consumers, as their motives for purchasing an electric car are more likely to consist of personal, non-environmental benefits. On the other hand, those consumers that are highly involved with the environment, i.e. score high on PESI, are probably not persuaded by such a message, as they are more concerned with the environmental benefits of the car. For this group, the environmental aspect is likely to be a more important driver for choice than the personal benefits. On the other hand, the consumers who are less involved with the environment, i.e. low on PESI, probably care more about the personal benefits of driving the car than its environmental benefits. As they are less concerned about the environment, the personal benefits are probably a more important driver for choice than the car's environmental benefits, hence they more likely to be persuaded by the additional message. As a consequence, the ads containing the additional message should be less effective for the group that score high on PESI, than the group scoring low on PESI.

In addition, following attribution theory (Settle and Golden, 1974), when focusing on a non-environmental, personal benefit, consumers who are highly involved with the environment (i.e. score high on PESI) are likely to question the advertisers motives of taking on a green positioning, and attribute the firm's green efforts to an attempt to increase its own profits, rather than to a genuine care for the environment. Thus, in line with Cotte et al. (2005) who found that consumers responded negatively if they recognized manipulative tactics within an advertisement, consumers who score high on PESI are likely to respond less positively than consumers who score low on PESI when a message presenting a non-environmental, personal benefit is used. Accordingly, consumers scoring high on PESI should show less

favourable attitudes than those scoring low on PESI when exposed to the ads containing the additional message.

Furthermore, in line with identity theory, products often are used as a means of self-categorization to a social group (Stets and Burke, 2000). Hence, consumers who categorize themselves as environmentally friendly consumers (i.e. high PESI), may seek to strengthen their belonging to this category by purchasing an electric car. However, if an ad is focusing on a personal benefit, high PESI consumers are likely to respond negatively as other people around them might think they purchased the car for reasons other than its environmental benefits, hence weakening the car's ability to strengthen their identity as an environmentally friendly consumer. Together with the above, this provides three valid reasons to believe that PESI reduces the positive effect of including an additional, non-environmental message that focuses on personal benefits. I therefore also hypothesize that:

H7: Ads (either rational or emotional) with an additional, non-environmental message will be less effective in producing positive attitudes toward a) the ad b) the product category c) the brand and d) the car model, for those scoring high on PESI, compared to those scoring low on PESI.

Finally, empirical studies have shown that perceived inconvenience of performing a pro-environmental behaviour tend to decrease intentions to perform that behaviour (cf. Cheah and Phau, 2011 and McCarthy and Shrum, 1994). Following the logic of Ajzen's (1991) TPB framework, this negative effect on purchase intentions should be mediated by attitudes. Thus if the consumer has a perception that driving an electric car is inconvenient, regardless of whether this is actually the truth, it is likely that he or she also has negative attitudes toward electric cars. McCarthy and Shrum (1994) suggest that a useful strategy is to address the consumer's inconvenience belief, by stressing that the behaviour in question is not at all inconvenient. It is therefore reasonable to assume that in order to be persuaded, consumers holding strong inconvenience beliefs, need to be provided with strong factual-arguments proving that electric cars in fact are not inconvenient to drive. From this follows that emotional ads should be less effective in producing positive attitudes than rational ads, for consumers scoring high on perceived inconvenience. I therefore make the following hypothesis for perceived inconvenience:

H8: Emotional ads are less effective in producing positive attitudes toward a) the ad b) the product category c) the brand and d) the car model, for those high on perceived inconvenience compared to those who are low on perceived inconvenience.

3. METHODOLOGY

In this chapter I will explain the methodological approach I chose for answering the research questions outlined in the first chapter. Firstly, I will provide a general description of my study and the overall research design. Second, I will describe the methodological approach of the pre-test that was conducted before the main study. This includes the purpose of the pre-test, the research design and the instrument design, the data collection and sampling procedures, as well as the results of the pre-test. The reason I include the results of the pre-test in this chapter, is that these were crucial for going on with the main study. Finally, I will describe the methodological approach for the main study, including research and instrument design, measurements, as well as data collection and sampling procedures.

3.1 General description of study and research design

The purpose of this master thesis is to investigate the effect of advertisement type upon attitudes and purchase intentions for electric cars. A second aim is to identify which advertisement type is most effective, taking into account factors that are potentially influencing the relationship between ad type and attitudes.

In order to answer the research questions elaborated in chapter 2.6, the study applies a research model based on Ajzen's (1991) *theory of planned behaviour* combined with elements from the consumer marketing and environmental psychology literature.

Explanatory or *causal* research aims to study a situation or a problem to explain a cause-effect relationship between two or more variables (Johannessen et al., 2011). As the purpose of this study is to explain the cause-effect relationships between ad appeal, attitudes and purchase intentions, an explanatory research design is chosen. Such a research design implies the collection of quantitative data, and an analysis of the data based on statistics (Johannessen et al., 2011). The data collected will therefore be quantitative in nature.

Moreover, this study is deductive in nature. A deductive approach aims to draw conclusions from general theoretical propositions to apply them in a specific context (Johannessen et al., 2011). Thus the hypotheses established in the previous chapter were developed on the basis of existing theory, and will be tested empirically.

3.2 Pre-test

3.2.1 Purpose of pre-test

A common and recommended practice in both academic and non-academic research is the use of pretesting. Hunt et al. (1982) define pretesting as *"the use of a questionnaire in a small pilot study to ascertain how well the questionnaire works"* (p.269). The purpose of the pre-test for this study however, was mainly to test the potential of two different ads, in manipulating the independent variable *ad appeal.* In order to be representative for the two types of ad appeal and qualified for use in the main study, the ads needed to significantly differ on perception of 'rationality', i.e. to what extent they were perceived to be based on rational arguments, and their 'emotionality', i.e. ability to generate positive feelings (at a confidence interval of 95 %). In the following I will describe how this pre-test was designed and conducted.

3.2.2 Pre-test design

A research design describes how a study is to be organized and implemented in order to address the research question to be answered or the problem to be solved (Johannessen et al., 2011). The pre-test was designed in the form of a survey-based experiment, with two experimental conditions. One group were given a questionnaire that presented an ad with a rational ad appeal, while the other experiment group were given a questionnaire that presented an ad with emotional appeal (without any additional message). As the main purpose of the pre-test was just to test the difference between the two ads, no control group was included.

The first page of the questionnaire contained a short description of the theme of the study, without revealing to respondents the actual purpose of the study, as well as instructions for how to complete the questionnaire. The second page showed a picture of an ad, either the ad with rational ad appeal or the ad with an emotional ad appeal. On the next pages followed a set of 10 questions. The full pre-test design is presented in Appendix 1.

3.2.3 Instrument design

The instrument used were two advertisements for the electric car Nissan Leaf. To achieve a higher level of authenticity, the experiment should ideally have used real advertisements. However, it was difficult to find ads that were able to serve the purpose my research, in terms of having either a rational appeal or an emotional appeal. I was in contact with the advertising agency that makes the Norwegian ads for Nissan Leaf to ask whether they could make ads specifically for my study, but they were not willing to do so. Thus, I created two different ads myself using Adobe Photoshop. In line with the characteristics of rational ads as defined by Albers-Miller and Stafford (1999), You et. al (2013) and Kotler (2003) in chapter 2.4.1, the rational ad (Appendix 1.1.1) was intended to activate rational thinking by presenting factual information in a straightforward manner. It therefore had a purely objective message; "*100 % electric. 0 emissions".* As in the study by Matthes et al. (2013), I used a neutral, grey background, in order to keep consumers focus on the car and the ad's message, and avoid evoking any feelings. In contrast, in line with the characteristics of emotional ads as defined by Albers-Miller and Stafford (1999) and Kotler (2003) in chapter 2.4.1 the emotional ad was intended to generate positive and warm feelings, and had a more subjective message; "*Good for you. Good for the environment*." Moreover, Chowdhury et al. (2008) found that a single dominant positive image could evoke significantly positive affective responses. Specifically in relation to advertising for green products, images containing pleasant nature scenery depicting green vegetation and clear water, has indeed been found to evoke such positive responses (e.g. Hartmann and Apaolaza-Ibáñez, 2012; Matthes et al., 2013). I therefore used a background image showing a natural scenery with bright green vegetation and clear water, for the ad with an emotional appeal (Appendix 1.1.2). However, to avoid uncontrolled variations due to other features of the ads, the same mechanical format (layout, bottom banner, typeface, and the Nissan logo) and picture of the car was used for both advertisements. All images were found using Google image search.

3.2.4 Measurements

After the page with the picture of the ad, the pre-test questionnaire included 8 questions to measure *ad likability, attitude toward the ad, attitude toward the brand*, the extent to which the ad was perceived as rational and fact-based (*'rationality'*) and the extent to which the ad

was perceived to generate positive feelings *('emotionality'*), the importance of a given additional message, as well as a preliminary measure of purchase intentions. Ad likability was measured on a 7-point Likert scale ranging from "not at all" to "to a great extent". The items for attitude toward the ad was based on Matthes et al. (2013) (Cronbach's $\alpha = .92$) and included 5 pairs of opposite adjectives, each measured on a 7-point semantic differential scales. The four questions about rationality and emotionality were all measured on 7-point Likert scales. Two of these, one for the rationality variable, and one for the emotionality variable, included of list of four words representing rational characteristics or feelings respectively, that respondents where asked to rate on a 7-point Likert scale to what extent the advertisement showed the characteristics, or generated the feelings.

The next question presented an additional, non-environmental message, in order to test whether it was perceived as relevant and important to the target group. The respondents where asked to describe how they found this information, using 3 items each measured on a 7-point semantic differential scale. Regarding the choice of the content of this message, the content was fact-based (hence rational) in response to the findings of Ha (1998) that emotional appeals need to be supported by a rational message. Moreover, people might have motives to purchase an electric car that are grounded in the car's personal benefit to the consumer, and thus non-environmental (e.g. cost savings due to lower taxes, free toll roads etc.) rather than its environmental benefits. As Grimmer and Woolley (2012) found that personal benefit messages were more effective for consumers who were less involved with the environment, the message was also a non-environmental one. Hence, the chosen message was a rational message demonstrating a personal benefit of driving the car; *"Save up to 15 200 kr in yearly fuel expenses* ...(*compared to a diesel-driven car of same size and a yearly driving distance of 15 000 km)"* The cost-saving was estimated using Grønn Bil's cost calculator to provide a realistic number (Grønn Bil, 2014).

Furthermore, one question about purchase intentions was included to ensure that the product had a certain level of relevance to the target group. It was measured through an 11-point purchase-intention scale based on Morrison's (1979) automobile intention scale. However, the time horizon was extended to 5 years given that the sample consists of students who most likely are not in the position of purchasing a car within 12 months, but are more likely to do so within 5 years. Finally, the questionnaire included a question about the respondent's

attitude to advertisements in general, as respondents with extreme values for this variable might disturb the results.

Extraneous factors may influence the relationship between the above-mentioned variables. To control for this, Johannessen et al. (2011) recommend including additional independent variables, known as *control variables.* Gender was therefore included as a control variable. The full questionnaire for the pre-test is available in Appendix 1.2.

3.2.5 Data collection and sampling procedures

The population for this study is Norwegian consumers. Ideally, the pre-test should therefore be conducted using a representative sample from the whole Norwegian population. When the objective is to make inferences from a sample to a larger population, the most appropriate sampling strategy is *probability sampling,* as this increases the likelihood that the sample is representative for the population (Johannessen, 2011). However, due to time and resource constraints I was not able to use probability sampling to pick a sample from the full population.

The chosen sampling procedure for the pre-test was therefore convenience sampling. Convenience sampling is a non-probability sampling technique where respondents are selected based on their immediate accessibility and proximity to the researcher (Johannessen et al., 2011). Respondents were as randomly as possible recruited among students at the library and the main canteen at the Norwegian School of Economics in Bergen. As they all attend the same school, the student population can be considered relatively internally homogenous group although they may attend different study programs and be at different stages of their study. For the purpose of the pre-test, it is an advantage that the sample is relatively homogenous as this eliminates some of the variance that might be caused by uncontrolled factors not related to the two ad appeals. I considered this more important, than the sample being representative of the full Norwegian population, as the objective of the pre-test not was to generalize findings to the whole population.

Moreover, for practical reasons and its purpose, the pre-test is conducted as a cross-sectional study. A cross-sectional study is a study that gathers data from a sample of a population at a given point in time (Johannessen et al., 2011). As the purpose of the pre-test not was to make predictions about the future however, I do not see this as a problem for the pre-test.

When it comes to sampling size, in general the larger the absolute size of the sample, the greater is the likelihood that the data will be close to normal distribution. A common rule of thumb is that each subgroup in the sample should have between 20 to 30 respondents in order to achieve normal distribution (Saunders et al., 2009). I therefore aimed to collect in total 60 questionnaires, of which 30 questionnaires presenting a rational ad and 30 presenting an emotional ad. The questionnaires were distributed as randomly as possible among students. However, I also tried to ensure an as even distribution as possible between genders, implying that the distribution was not totally random.

3.2.6 Results from the pre-test

Descriptives

In total 56 responses were collected. However, those that contained a string of identical responses on two or more of the variables measured on a 7-point Likert scale were considered careless responses. 6 responses were therefore taken out of the subsequent analysis. The distribution of the remaining responses to the rational and the emotional ads, were 25 and 25 respectively, of which 27 responses from male students and 23 from female students. The distributive frequencies for ad type and gender are summarized in **Table 1** and **Table 2** respectively:

Table 1: Distribution of responses per ad type

Ad type	Frequency	Percent
Rational	25	50.0
Emotional	25	50.0
Total	50	100.0

Table 2: Distribution of responses per gender

Gender	Frequency	Percent
Male	27	54.0
Female	23	46.0
Total	50	100.0

ANOVA

Before analysing the data from the pre-test, the multi-component variables were computed into single scales (Att.Ad, Rationality.Scale, Emotions.Scale, Importance.Add.Mssg).

Secondly, a one-way ANOVA was run to test for the differences between the two experimental conditions. The results of this test are presented in Appendix 1.3.1.

The results indicate, as expected, that the group presented to a rational ad demonstrated higher perceptions of rationality (Rationality.Scale $F(1,48)= 5.778$, $p=.020$) whereas the group presented to an emotional ad reported more positive feelings (Positive.Feelings $F(1,48)= 6.300$, $p= 0.015$, and Emotions.Scale $F(1,48)= 8.203$, $p= 0.006$. However, at 5 % significance level, there was no significant difference between the groups, in their perception that the ad presented factual arguments ($F(1,48) = 2.821$, $p = 0.100$). This difference is only significant at 10% level.

There was no significant difference in the perceived importance of the additional message ($F(1,48) = .376$, $p = .542$), meaning that the additional message is important no matter the type of ad appeal. This suggests it can be used in both types of ads. However, as the purpose of this question in the pre-test only was to see whether it was perceived as important, and not to test the differences when combining it with ad appeal, it was included as a separate question rather than in the ads itself. It might therefore be that the results of the main study will be different.

Ad likability and attitude toward the ad did not show significant differences among the two groups. However, I do not consider this as a major problem for the main study, as the differences might be significant when tested on a larger sample. Purchase intentions were not significantly different among groups either. The mean scores for this variable were also generally very low, suggesting that the product might not be as relevant to the sample group, or that the measurement scale might be inappropriate. It might be that most students are not at the point of considering purchasing a car at the moment, and that the time horizon of 5 years therefore is to short. Moreover, using an 11-point scale might have created a polarization towards the bottom end, creating unreasonably low purchase intentions. However, I do not consider it an option to eliminate this variable from the main study as it represent one of the main variables of interest in my research. Thus for the main study I decided to use another purchase intention scale and extend the time horizon to 10 years.

ANCOVA

As an additional test of whether the rational-emotional manipulation worked as intended, an ANCOVA was run including gender as a covariate in order to correct for differences that might be due to gender. The results from this test are presented in Appendix 1.3.2.

The results showed that when correcting for differences that may be caused by gender, there was still a significant difference between the group given a rational ad and the group given an emotional ad on three of the variables; Rationality Scale (p=0.019), Positive.Feelings (p=0.015), Emotions.Scale (p=0.008). Factual.Arguments (p=0.073) was still not significant.

However, as these results were significant (or close to significant in the case of Factual.Arguments) and the previous ANOVA also showed that the ads were significantly different on the most important variables, namely Rationality and Emotionality. I therefore decided to use the ads for the main study. No further modifications were made, except creating one version of each ad that also contained the additional message.

3.3 Main Study

3.3.1 Research design

The main study was conducted, like the pre-test, using an explanatory research design, in the form of a survey-based experiment. The study is equally deductive in nature. In contrast to the pre-test however, the main study was not conducted through means of a 'pen and paper' questionnaire, but through means of an online survey, using Qualtrics. Qualtrics is a software tool for creating online surveys, and is available to NHH students for use in our thesis work.

The experiment was conducted as a 2 x 2 factorial design. As in the pre-test the first dimension was the rational-emotional dimension. However, based on the finding from the pre-test that the additional, non-environmental message was important to the sample group, a second dimension was included, namely the without-with additional message dimension. Thus, in addition to the two ads from the pre-test, two more were added, one rational and one emotional ad, that both contained the additional, non-environmental message.

Combined, this gave four experimental conditions represented by four different ads: a rational ad, an emotional ad, a rational ad with an additional message, and an emotional ad

with an additional message. The experimental conditions are presented in **Figure 6.** Qualtrics has a function that enabled random exposure to one of the four ad types (i.e. treatment conditions), while ensuring an even distribution of the respondents to each ad. After exposure to the advertisement, a set of survey questions followed.

Figure 6: Experimental conditions

3.3.2 Instrument design

The instrument used in the main study was also an advertisement for the electric car Nissan Leaf. The same ads that were used as in the pre-test, constituted the rational and emotional ads. The same ads were also used as the basis for the ads with the additional, non-environmental message. Except inserting the additional text, nothing was changed in the ads themselves. The description of the instrument design when it comes to the look of the ads will therefore not be repeated here. The inclusion of the additional, non-environmental message ("*Save up to 15 200 kr in yearly fuel expenses*",* with the asterisk referring to *"*compared to a diesel-driven car of same size and a yearly driving distance of 15 000 km"* which is written in smaller font) was based on the finding from the pre-test that this was important and relevant to the target group. Consistency across the two types of appeal was maintained by using the exact same text and typeface for the additional message.

3.3.3 Measurements

The survey was designed so that all questions were mandatory, i.e. respondents were not able to continue the survey unless all questions on the current page were answered. The

measurements of the independent variable, the dependent variables and moderating variables is described below.

Independent variable

The independent variable was manipulated using four different ads (cf. Appendix 2.1), creating four experimental conditions. The survey software enabled randomization such that respondents were exposed to a random among the four ads (i.e. treatment conditions), while ensuring even distribution among the four.

Dependent variables

Based on the results of the pre-test showing very low mean scores for purchase intentions, the 11-point purchase intention scale by Morrison (1979) was replaced by a purchase intention scale based on Hartmann and Apaolaza-Ibáñez (2012). Respondents were asked to rate the probability that they would purchase an electric car in general and that they would purchase the given brand (the Nissan Leaf), on two 5-point scales ranging from *"definitely will not buy"* to *"definitely will buy"*.

The next question was one about ad likability, asking respondents to rate to what extent they liked the ad they were just presented, on a 7-point scale ranging from *strongly dislike* to *strongly like.* The measurement of the dependent variables *attitude toward the ad* (Cronbach's $\alpha = .92$) and *attitude toward the brand* (Cronbach's $\alpha = .96$) were based on Matthes et al. (2013) and included five 7-point semantic differential scales for each. Two additional variables, *attitude toward the product category* and *attitude toward the car model,* were also included using the same scale and items as for attitude toward the brand. See Appendix 2.2.2 for all items.

Moderating variables

Product category involvement was measured using the Personal Involvement Inventory (PII) scale developed by Zaichkowsky (1985), asking respondents to rate five statements on a Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7). The scale has successfully met criteria for *"internal reliability, reliability over time, content validity, criterion-related validity, and construct validity"* (p.341) with Chronbach's alpha values ranging from .97 to 0.99 for three distinct product categories. (Zaichkowsky, 1985).

Pro-environmental self-identity was measured using a scale taken from Whitmarsh and O'Neill (2010), consisting of two statements with positive scoring and two statements with

reverse scoring, and which has been found to be a reliable scale (Chronbach's alpha = .7). Although Whitmarsh O'Neill (2010) used a 5-point scale, the four statements were measured on a 7-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7) to ensure consistency with the other survey questions measured on a Likert scale.

Finally, the measure of *perceived inconvenience* was adapted from McCarty and Shrum (1994) and included three items; "Driving an electrical car is inconvenient", "It takes too long to charge the batteries of an electric car", and "Driving an electric car is too much trouble". Again, the items were measured on a 7-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7).

The items for the above constructs are also presented in Appendix 2.2.2.

Manipulation checks

In line with Perdue and Summers (1986), the main study, as the pre-test, included manipulation checks for the rational-emotional dimension of the ads. Two questions addressed the 'rational' dimension of the ad. The first asked respondents to what extent they agreed that the advertisement presented factual arguments, producing the variable Factual.Arguments. The second asked respondents to what extent they agreed the advertisement was *convincing, credible, fact-based* and *rational,* representing the items making up the variable Rationality. The following two questions, addressed the 'emotional' dimension of the ad. The first asked respondents to what extent they agreed that the advertisement evoked positive feelings, producing the variable Positive.Feelings. The second asked respondents to what extent the advertisement made them feel *happy, joyful, calm* and *satisfied,* representing the items making up the variable Emotionality. All manipulation checks were measured on a 7-point scale from *"Strongly disagree"* (1) to "*Strongly agree"* (7). All items are presented in Appendix 2.2.2.

Control variables

In order to control for variation that might be due to exogenous factors, four control variables were also included. Firstly, one question addressed whether the respondent was in the disposition of a car on a daily basis, measured by a *yes* or *no* answer. A second question addressed whether the respondent had any previous experience with electric cars, and was measured on a four-point scale ranging from *"No experience at all", "Very little experience", "Some experience"* to *"A lot of experience"*. Finally, two demographic control

variables were also included; age and gender. Respondents were asked to indicate their age on a scale containing the categories *"18-20", "21-23", "24-26", "27-30"* and *"30+"*, and finally to indicate their gender. All control variables are also presented in Appendix 2.2.2.

3.3.4 Sampling and survey collection procedures

As for the pre-test, a convenience sampling procedure was used, recruiting respondents among the student population at the Norwegian School of Economics (NHH). However, instead of being approached in person at the school, students were invited to participate through an e-mail that was sent out to their student email, containing a link to the survey. Thus participants chose whether to participate or not, resulting in self-selection.

Moreover, the main study is like the pre-test conducted as a cross-sectional study. However, cross-sectional studies have a limitation in that it makes it difficult to predict causal relationships between phenomena. Where the objective is to predict such relationships, ideally a *longitudinal* study should have been used, where data is collected at several points of time (Johannessen et al., 2011). Nevertheless, a master thesis usually is written over the course of 6 months and resources available to a student is usually rather limited. Because of these time and resource constraints, I was thus not able to conduct a longitudinal study, but had to go with a cross-sectional study.

According to Cohen (1992), the choice of sample size depends on the desired level of statistical significance (α) and statistical power, and the expected effect size. However, he proposes the convention that when lacking a basis for setting the desired level of significance and statistical power, an α of 0.05 and a power of 0.80 should be used. When using ANOVA to test for differences between and among groups, one should according to Cohen's conventions have 30 participants per cell to reach a power of 0.80 (given an expectation of detecting a medium to large effect size) (VanVoorhis and Morgan, 2007). Moreover, Green (1991) suggests than when running linear regressions to examine causal relationships, the minimum requirement for sample size for testing individual predictors should be $N > 104 +$ the number of independent variables, (cited in VanVoorhis and Morgan, 2007). In my study I intended to use both ANOVAs (for hypotheses H1-H3 and H6-H11) and multiple linear regressions (for hypotheses H4 and H5). To comply with the sample size requirement for ANOVAs I therefore needed a total sample of at least 120 respondents (4 experimental

groups x 30 respondents), while to comply with that for linear regressions I needed at least 104+4= 108 respondents. I aimed for the largest of these however, thus at least 120 respondents.

In order to increase the response rate and hence the sample size, an incentive for the students to participate in the survey was provided by the possibility of entering a drawing for the following prizes: 1) an iPad Air 2) 2 gift cards at G-sport worth NOK 500. To ensure a high completion rate, the respondents had to complete the full survey in order to participate in the drawing. When they had completed the survey and clicked 'Submit', the respondents were redirected to an independent survey link where they could enter their e-mail address to participate in the drawing. As the two surveys were completely independent, and I had set Qualtrics to not track the respondents' IP addresses, it was not possible to track the email adresses back to the survey responses, which ensured full anonymity. This was clearly stated both before participants entered the link as well as below the entry field for the email address, together with a clause that their email address would be kept confidential and deleted after the drawing had taken place as well as not distributed to third parties or used for other purposes.

3.4 Data analysis

Johannessen et al. (2011) suggest two main methods for investigating cause-effect relationships; a controlled *experiment* and *statistical control*. Firstly, although not completely controlled, the experiment described in 3.3.1 ensured *randomization* of the respondents into two experimental groups, where each are exposed to a different independent variable (ad type). Secondly, for statistical control I decided to employ two main statistical analysis techniques, namely ANOVAs and (multiple) linear regressions. However, using these tests requires certain assumptions to be met (Field, 2009). In the next chapter, I will therefore discuss whether my study meets these assumptions.

All statistical analyses were performed using SPSS (version 20.0), a software provided by NHH which is free of use for students for thesis purposes, and which could perform all statistical analyses of interest to this study.

4. ANALYSIS AND RESULTS

In this chapter I will begin with a descriptive analysis of the data obtained through the survey. Second, I will assess the correlation between the variables. Then, before presenting my results, I will discuss whether my study meets the assumptions of the statistical tests being used. Finally, I will test the hypotheses related to the two research questions and their corresponding results.

4.1 Descriptive analysis

The sampling size was 800 students, consisting of 750 master students from the Master of Science in Economics and Business Administration and 50 students from the Master in Accounting and Auditing. In total 406 students started the survey, while 273 completed it, thus the final sample consisted of 273 respondents (n=273). This is above the minimum requirement for sample size in accordance Cohen (1992). The response rate of the survey is thus 273/800= 0,34125, or 34,1 %, which can be considered a quite good response rate.

Regarding the distribution among gender, the respondents were 53,1 per cent male and 46,9 per cent female, as illustrated in **Table 3:**

Table 3: Distribution of responses by gender

	Frequency	Percent
Male	145	53.1
Female	128	46.9
Total	273	100.0

Moreover, the distribution of respondents is predominantly concentrated in the age groups 21-23 years and 24 to 26 years, as illustrated by **Table 4:**

Table 4: Distribution of responses per age group

	Frequency	Percent
18-20	0	0.0
21-23	81	29,7
24-26	158	57.9
27-30	26	9.5
30+	8	2.9
Total	273	100.0

The distribution of respondents for the other two control variables (disposal of a car and previous experience) as well as descriptive statistics for all control variables are presented in Appendix 3.1. The majority of the respondents are not disposing a car, and most of them also have either very little or no previous experience at all with electric cars.

Descriptive statistics for the constructs (product category involvement, pro-environmental self-identity and perceived inconvenience) are presented in Appendix 3.2. Descriptive statistics for the attitude and purchase intention variables are presented in Appendix 3.3. and 3.4 respectively.

Regarding the distribution of responses per ad type (i.e. treatment condition), the randomization functionality in Qualtrics ensured a more or less even distribution of the respondents among the four different ad types, as illustrated in **Table 5:**

Table 5: Distribution of responses per ad type

Ad type	N
1	61
2	67
3	75
4	70
Total	273

The mean attitude- and purchase intention scores and standard deviation per ad type are presented in Appendix 3.6. Several differences in scores can be observed between the four different ad types. However, whether these are statistically significant will be examined later in this chapter.

Careless responding

Two criteria were set to identify two different types of careless responses. Firstly, responses were considered careless if containing identical responses on all items on more than 5 of the variables using a 7-point Likert-scale. 15 such responses were identified. Second, respondents that completed the survey in less than 3 minutes were also considered careless, as it should not be possible to perform the survey in such a short time if reading the questions properly. 6 such responses were identified. To test for the effects of the careless responses on my results, I computed a variable for each of the two criteria above, giving respondents a score indicating whether they were considered careless or not (0= OK, 1= Careless). I then ran an ANOVA with each of these two careless-response variables as the

independent variables, for each of the dependent variables. In other words, the first round of ANOVAs tested whether there was a difference between the group having identical responses on more than 5 variables (i.e. the careless response group) and those who did not. The second round of ANOVAs tested whether there was a difference between the group completing the survey in less than 3 minutes (i.e. the careless response group) and those that spent more than 3 minutes.

However, there was no significant difference between any of the groups, on any of the dependent variables. Hence, there was no effect of either the first or the second type of careless response. The responses were therefore kept and included in the subsequent analysis in order to maintain a considerable sample size.

4.2 Manipulation checks

To ensure that my manipulation of ad type worked as intended, I conducted a manipulation check using the same measurements of the manipulation as in the pre-test. The rational dimension was tested using the variables Factual.Arguments and Rationality, while the emotional dimension was tested using the variables Positive.Feelings and Emotionality. To compare the differences among the groups exposed to the rational ads and the emotional ads I ran an ANOVA with ad type (Ad.Condition) as the independent variable, for each of the variables above as the dependent variable. I used special contrasting (UCLA, 2014) so that I could compare the averages of the plain rational ad and the rational ad with an additional message (group 1), with the averages of the plain emotional ad and the emotional ad with an additional message (group 2). The results showed that there was a significant difference in the scores for Positive.Feelings (ρ=.000) and Emotionality (ρ=.000) with the emotional ads (group 2) scoring higher than the rational ads (group 1). For Factual.Arguments (ρ=.983) and Rationality (ρ=.263) on the other hand, there was no significant difference between the two groups. However, this might be due to the emotional ad with the additional message driving up the average score. I therefore also ran another ANOVA for Factual.Arguments and Rationality contrasting the two ads with additional messages only. Factual.Arguments still showed no difference (ρ=.477), suggesting this was not an adequate measure for the manipulation. For rationality on the other hand, the difference was significant at the 10 per cent level (ρ=.054). Although, the results show weak differences for the rational dimension,

the ads at least differ substantially on the emotional dimension. I therefore chose to continue with the analysis. The full results of the manipulation check is presented in Appendix 4.

4.3 Correlations

In order to evaluate the strength of the relationships between the dependent and independent variables have analyzed the correlation between them using Pearson's correlation coefficient. The Pearson correlation coefficient ranges from -1 to 1, and the sign determines whether the relationship among the variables is positive or negative. The further away from 0, the stronger the linear relationship (Trochim, 2006). The coefficients are presented in a correlation matrix (**Table 6**) below:

Table 6: Correlation Matrix

Measure	1	2	3	4	5	6	7	8	9
1. PI.General	1	.284**	.138*	.416**	.115	.089	.410**	.128*	-.226**
2.PI.NissanLeaf	.284**	1	.246**	.179**	.447**	.520**	.077	.197**	-.065
3. Att.Ad	.138*	.246**	1	.322**	.421**	.411**	.071	.153*	-.136*
4. Att.Prod. Category	.416**	.179**	.322**	1	.272**	.268**	.392**	.387**	-.345**
5. Att.Brand	.115	.447**	.421**	.272**	1	.699**	.031	.178**	-.118
6. Att.Carmodel	.089	.520**	.411**	.268**	.699**	1	.011	.190**	-.116
7. Prod. Category. Involvement	.410**	.077	.071	.392**	.031	.011	1	.142*	-.135*
8. PESI	.128*	.197**	.153*	.387**	.178**	.190**	.142*	1	-.204**
9. Perceived Inconvenience	-.226**	-.065	-.136*	-.345**	-.118	-.116	-.135*	-.204**	1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Firstly, as seen from the table, all the attitudinal variables are correlated with at least one of the purchase intention variables. This provides a valid reason for looking more closely into the proposed relationships in the model related to research question 1.

Secondly, as all the constructs show a significant correlation with at least more than one of the attitudinal variables, there also seem to be valid reasons for looking more closely into the proposed relationships in the model related to research question 2.

4.4 Reliability analysis

Measures that contain more than one item, i.e. scale measurements, should be tested for internal consistency, meaning that all the items of the scale are representing the same construct (Santos, 1999). A common measure of internal consistency is the reliability coefficient Chronbach's alpha. According to Santos (1999), a Chronbach's alpha of 0.7 can be considered acceptable, although some researchers use lower thresholds. In order to check the internal consistency of the scale measures, (Att.Ad, Att.Prod.Category, Att.Brand, Att.Car.Model, Prod.Cat.Involvement, PESI and Perceived.Inc.), I computed their Chronbach's alpha values using SPSS. These are available in Appendix 5. The Chronbach's alpha values of all the constructs are above the threshold suggested by Santos (1999), with the exception of that of PESI (α=.643) which however is very close. I therefore conclude that the scale measurements are reliable and hence suitable to use in the further analysis.

4.5 Analysis of assumptions of statistical tests

4.5.1 Assumptions for ANOVA

One assumption of ANOVAs is that of independent observations (Weinberg and Abramowitz, 2008). If the responses come from separate individuals who have been randomly selected from their respective populations, as well as randomly assigned to one of the experimental conditions, then observations are assumed to be independent. As the sample used in this study consists of individuals that are randomly selected within the student population at NHH and randomly assigned to one of the ad types (i.e. treatment conditions), I consider this assumption to be met.

Another important assumption for ANOVAs is that of normal distribution, meaning that the parent populations for all groups studied must be normally distributed (Field, 2009). A method to test for normality in the data is to examine the Skewness and Kurtosis for each variable. Skewness describes how much the distribution deviates from being symmetric about the median, while Kurtosis refers to how much of the variance in the data that arises from extreme values (i.e. outliers) (Stock and Watson, 2012). According to Field (2009) a normal distribution has a Skewness and Kurtosis values of 0, thus the further away these are from 0, the greater is the probability of the data not being normally distributed. Field (2009)

further states that the absolute value of 1 can be considered the critical value for both Kurtosis and Skewness. With regard to the assumption of normality a list of Kurtosis and Skewness values for all variables is therefore presented in Appendix 3.6. **Table 7** below shows the variables having Kurtosis or Skewness above the critical value. This may be an indication that the variables are not normally distributed, and it is therefore necessary to consider whether these variables should be excluded from the subsequent analysis.

Table 7: Variables with critical Skewness/Kurtosis values:

	Skewness	Kurtosis
Ad likability	-0,335	1,04
Att.Ad_Unpleasant-Pleasant	-0,722	1,049
Att.Ad_Not credible-Credible	-0,7	1,076
Att.Prod.Cat_Negative-Positive	-0,956	1,046
Att.Brand_Not recommendable-Recommendable	-0,19	1,111
Prod.Cat.Inv_3	0,171	-1,145
PESI_3 (reverse scoring)	-1,436	1,828
PESI_4 (reverse scoring)	-1,331	1,093
Disposal.Car	-1,585	0,517
Gender	0,125	-1,999

However, according to Weinberg and Abramowitz (2008) the ANOVA is rather robust against violations of the assumption of normal distribution. If it is violated it does not affect, or at least only minimally affects, the validity of the analysis as long as subgroups consist of at least 30 subjects. As the subgroups in my main study consist of 60 subjects or more, violations of this assumption should therefore not have major implications for the validity of the results. Moreover, according to Hair et al. (2010), there is less need to be concerned about non-normality for large sample sizes (200 or more). As the sample for this study is 273, I therefore do not consider non-normality as critical. Consequently, I will keep the three variables in **Table 7** for the subsequent analysis.

Finally, ANOVAs are based on the assumption of homogeneity of variance, meaning that the parent populations for all groups studied have equal variances, also referred to as homoscedasticity (Weinberg and Abramowitz, 2008). This was tested for using Levene's test in SPSS. The test showed no significance at the 5 per cent level for any of the attitudinal

variables; Att.Ad (ρ=.064), Att.Prod.Category (ρ=.708), Att.Brand (ρ=.143), and Att.Car.Model (ρ=.448). The full test is presented in Appendix 6.1.

4.5.2 Requirements and assumptions for multiple linear regression

Several requirements assumptions should be met when running linear regressions (Field, 2009). Although, I have also run simple regressions in the testing of hypotheses H3 and H4, I will only discuss the assumptions of multiple linear regressions, as many of the assumptions are overlapping.

A first requirement is that the number of respondents should be at least 15 times the number of independent variables (Burns and Burns, 2008). As the multiple linear regressions have up to 4 independent variables (the four attitudinal variables), I consider this requirement to be met. A second requirement is that the variables need to be quantitative, and the predictor variables either scale variables or categorical and the dependent variable need to be a continuous scale variable. This requirement is also met.

Regarding the assumptions, one assumption of multiple linear regressions is that of non-zero variance, i.e. that all predictor variables have a variance unequal to zero (Field, 2009). As shown by the descriptive statistics in Appendix 3.6 this assumption is met.

Second, an assumption is that there should not be perfect multicollinearity, meaning that independent variables should not be too highly correlated, i.e. there should not be a perfect linear relationship between any two or more independent variables (Field, 2009). I tested for this using one of the collinearity diagnostics in SPSS, namely the *variance inflation factor* (VIF). According to Myers (1990), a VIF value should ideally be close to 1 and a value of 10 or higher is a reason for concern (cited in Field, 2009). The VIF values for the linear regressions are presented in Appendix 7.3. As they are mostly equal to 1 or close to 2, they can be deemed acceptable, hence I consider the assumption of no multicollinearity to be met.

A third assumption is that of no correlation with external variables, meaning that the variables used should not be correlated with variables influencing the outcome variable, which are not included in the regression model (Field, 2009). I have conducted an extensive literature review in order to identify and include in my research model the most important variables that influence the relationship between ad type, attitudes and purchase intentions. However, for model simplification reasons, these external or moderating factors, are only

tested for in research model 2, and not in research model 1 where multiple linear regression is actually used. As these moderating factors indeed do correlate with the variables used in the linear regressions, i.e. with the attitude and purchase intention variables (cf. chapter 4.3), but are not included in the linear regression model, there is therefore a risk that this assumption is being violated. How these factors affect the attitude-mediated relationship between ad type and purchase intention, should thus be tested in other studies applying more advanced statistical techniques that are able to take into account more complex relationships (e.g. structural equation modelling).

A fourth assumption is that the error terms (residuals) are random and normally distributed, with a mean of 0 (Field, 2009). This can be tested for by the use of histograms and normal probability plots (P-P plots) (Stock and Watson, 2012). Histograms and P-P plots for the residual terms are therefore presented in Appendix 6.2.1. According to the histograms, the distribution of the residuals seems to have a bell shape for all variables, and the P-P plots for all variables show that the residuals lie on a straight line. This indicates that the residuals are normally distributed, hence I consider this assumption to be met.

Another assumption regarding the residuals is that of homoscedasticity, meaning that the variance of the residuals should have constant variance. If this is not the case, the data is subject to heteroscedasticity (Field, 2009). According to Stock and Watson (2012), heteroscedasticity can also be detected graphically but by using scatterplots of the estimated squared residuals. The scatterplots for my variables are also available in Appendix 6.2.1. According to the scatterplots, the residuals of Ad.Condition on Att.Ad, Att.Prod.Category, Att.Brand and Att.Car.Model, seem to have constant variance. Regarding the residuals of the attitude variables on PI.General and PI.NissanLeaf however, there seems to be a problem of heteroscedasticity.

Moreover, it is assumed that the residual terms of any two observations should be independent from each other, i.e. uncorrelated (Field, 2009). I tested for this using the Durbin-Watson test, which is also available in SPSS. The Durbin-Watson test is aimed at identifying serial correlations between errors. It produces values between 0 and 4, where values smaller than 1 or larger than 3 represent a reason for concern (Field, 2009). The values for the Durbin-Watson test are presented in Appendix 7.3. As they all were within the accepted range, I consider the assumption of independence of residuals as being met.

Finally it is assumed that there is a linear relationship between the predictors and the dependent variable. This means that the mean values of the dependent variable associated with a change in the predictors lie along a straight line (Field, 2009). This was tested for by checking for patterns in the scatterplots of the residuals for each of the independent variables (cf. Appendix 6.2.1). As there was no clear pattern, this means that the assumption is met.

Both ANOVA and multiple linear regression are said to be quite robust against violations of their underlying assumptions (Weinberg and Abramowitz, 2008). However, if they are met, the probability that the model obtained from the sample is equal to that of the population, is increased (Field, 2009). In other words, if the assumptions discussed above are met, there is an increased probability that the model obtained from the sample of students at the Norwegian School of Economics, is representative of that of the full population of Norwegian consumers. A summary of the assumptions and whether they are met or not, is presented in **Table 8** below:

Table 8: Summary of assumptions of statistical tests

Statistical test	Assumption	Meets assumption	Additional information
ANOVA	Independence of observations	Yes	-
	Normal distribution	Yes	Appendix 3.6
	Homogeneity of variance	Yes	Appendix 6.1
Multiple linear regression	Non-zero variance	Yes	Appendix 3.6
	No perfect multicollinearity	Yes	Appendix 7.3
	No correlation with external variables	Undecided	-
	Normal distribution of errors	Yes	Appendix 6.2.1
	Homoscedasticity	Partially (meets for attitudinal variables, but not for purchase intention variables)	Appendix 6.2.1
	Independent errors	Yes	Appendix 7.3
	Linearity	Yes	Appendix 6.2.1

4.6 Results of hypotheses RQ1

In response to research question 1 about which type of ad is most effective in influencing attitudes and subsequent purchase intentions, four hypotheses were put forward (H1-H4). The results of these hypotheses will be presented in turn below.

4.6.1 Effects of ad type on attitudes (H1-H2)

The first two hypotheses, H1 and H2, focused on the effect of ad type on attitudes. These effects are demonstrated by the differences in mean scores between the different ad types (i.e. treatment conditions) on the attitudinal variables, as shown in **Table 9**:

Table 9: Mean scores per ad type (treatment condition)

Ad type		Att.Ad	Att.Prod.Category	Att.Brand	Att.Carmodel
1.00	Mean	4.5049	5.5574	4.3869	4.3770
	Std. Deviation	.84979	.93246	1.03786	1.07771
	Minimum	2.20	3.00	1.00	1.00
	Maximum	5.80	7.00	6.20	6.60
2.00	Mean	4.5134	5.3134	4.4149	4.4955
	Std. Deviation	.98487	1.03703	.98984	.99657
	Minimum	1.80	1.00	2.00	2.00
	Maximum	6.80	7.00	7.00	7.00
3.00	Mean	4.7493	5.5360	4.4053	4.5067
	Std. Deviation	.83769	1.04657	1.08502	1.24784
	Minimum	2.80	3.00	1.40	1.00
	Maximum	7.00	7.00	7.00	7.00
4.00	Mean	4.8400	5.3971	4.6143	4.7171
	Std. Deviation	.69749	.97177	.75090	1.01781
	Minimum	2.60	2.80	2.80	1.00
	Maximum	7.00	7.00	6.00	7.00
Total	Mean	4.6601	5.4505	4.4571	4.5289
	Std. Deviation	.85452	1.00011	.97330	1.09468
	Minimum	1.80	1.00	1.00	1.00
	Maximum	7.00	7.00	7.00	7.00

However, to test whether the differences presented in **Table 9** were statistically significant and be able to either accept or reject hypotheses H1-H2, I ran several ANOVAs to compare the attitude scores of the groups exposed to the four different types of ads.

Emotional vs. rational ads (H1):

To test hypothesis H1, I first ran an ANOVA that used simple contrasting between the four different types of ads, for each of the attitudinal variables. In addition, to further test the difference between the groups and provide a more solid basis for drawing conclusions, I also ran an ANOVA for each of the attitudinal variables using special contrast coding, contrasting

the averages of the two rational ads (level 1 and 2) against the averages of the two emotional ads (level 3 and 4).

Firstly, there was a significant difference between groups (ρ=.047) for attitude toward the ad (Att.Ad). Contrasting the four ads showed a significant difference between the emotional ad containing an additional message (level 4) and the rational ad with an additional message (level 2) (ρ=.025), and also between level 4 and the plain rational ad (level 1) (ρ=.025), with level 4 in both cases resulting in a more positive attitude toward the ad. However, there was no significant difference between the plain emotional ad (level 3) and the plain rational ad (level 1) (ρ=.095). Thus according to this method, H1a is only partially supported. Nevertheless, with the special contrast coding, there was significant difference between the rational ads and the emotional ads (ρ=.006), with the emotional ad group producing more positive attitudes toward the ad. Based on this method, H1a can thus be accepted. The full results are presented in Appendix 7.1.1 and 7.2.1

Secondly, for attitudes toward the product category (Att.Prod.Category), there were no significant difference among the groups (ρ=.0.442). Contrasting the four groups using simple contrast coding, gave the following p-values; level 1 vs. level 3 (ρ=.901), level 1 vs. level 4 (ρ=.361) and level 2 vs. level 4 (ρ=.625). There is thus no support for H1b, according to this method. Using the special contrast coding did not show a significant difference between the rational ads and the emotional ads either (ρ=.798), meaning that H1b is rejected. The results are presented in Appendix 7.1.2. and 7.2.2.

Third, for attitudes toward the brand (Att.Brand), there were equally no significant differences between the four ads, when using simple contrasting (ρ=.481). The p-values from contrasting the groups were as follows; level 1 vs. level 3 (ρ=.913), level 1 vs. level 4 (ρ=.184) and level 2 vs. level 4 (ρ=.232). Hence, the results from this method do not support H1c. Using the special contrast coding did not show a significant difference between the rational ads and the emotional ads either (ρ=.358), thus H1c is rejected. The full results are presented in Appendix 7.1.3 and 7.2.3.

Finally, neither for attitudes toward the car model (Att.Car.Model) were there any differences among the groups (ρ=.344).). The contrast results gave the following p-values; level 1 vs. level 3 (ρ=.493), level 1 vs. level 4 (ρ=.077) and level 2 vs. level 4 (ρ=.237), providing no support for H1d. Using the special contrast coding did not show a significant

difference among the two ad groups either (ρ=.187), meaning H1d is rejected too. The full results are presented in Appendix 7.1.4 and 7.2.4.

To sum up, only H1a is supported, while H1b, H1c, and H1d are rejected.

Emotional ads with additional message vs. without additional message (H2):

To test for the difference between the emotional ads containing an additional, non-environmental message and those that did not, I ran an ANOVA using simple contrasting, for each of the attitudinal variables. Firstly, there were no significant differences in attitude toward the ad (ρ=.520), between the emotional ad containing an additional message and the one that did not (level 3 vs. level 4). There were neither any difference attitude toward the product category (ρ=.404), attitude toward the brand (ρ=.198), nor attitude toward the car model (ρ=.248). Consequently, the H2a, H2b, H2c, and H2d all have to be rejected. The full results of the ANOVAs are available in Appendix 7.1.

4.6.2 Mediating effects of attitudes upon the relationship between ad type and purchase intentions (H3-H4)

Before conducting a mediation analysis to test hypotheses H3 and H4 (i.e. Sobel's test), it was necessary to obtain the regression coefficients for ad type (Ad.Condition) upon the attitudinal variables, as well as the coefficients for the attitudinal variables upon the two purchase intention variables. A simple linear regression was therefore run for the relationship between ad type and each of the attitudinal variables, while a multiple linear regression was run for the relationship between the attitudinal variables and each of the two purchase intention variables. The significance of the results from these regressions are briefly described before proceeding to the results of the Sobel's test.

Effect of ad type on attitudes: Simple linear regressions

Firstly, ad type had a significant impact on attitudes toward the ad at a 10% significance level, but not at 5 % significance level (ρ=.007). Second, ad type had no effect on either attitude toward the product category (ρ=.677) nor attitude toward the brand (ρ=.205). Finally, it's effect on attitude toward the car model (ρ=.087) was only significant at 10 % significance level. The full results of these regressions and the regression coefficients are available in Appendix 7.3.1-7.3.4.

Effect of attitudes on purchase intention: Multiple linear regressions

Firstly, on purchase intentions for electric cars in general (PI.General) only attitudes toward the product category had a significant impact (ρ=.000). Attitude toward the ad (ρ=.867), the brand (ρ=.699) and the car model (ρ=.543) had no significant impact.

Secondly, for purchase intentions for the specific car model, Nissan Leaf (PI.NissanLeaf) both attitudes toward the brand (ρ=.034) and the car model (ρ=.000) a significant influence on purchase intentions. However, attitude toward the ad (ρ=.897), and attitude toward the product category (ρ=.635) had no significant impact.

The full results and the regression coefficients are available in Appendix 7.3.5 and 7.3.6.

Mediating effects of attitudes on purchase intentions: Sobel's test

Having all the necessary regression coefficients, I could run a mediation analysis. Simple mediation effects can be tested using a method developed by Sobel (1982), called the Sobel test. The test compares the strength of the indirect effect of an independent variable on an outcome variable, to the null hypothesis that it equals zero (Preacher and Hayes, 2004). To test for a mediating effect of attitudes on the relationship between ad type and purchase intentions (Hypotheses H3 and H4), a Sobel's test made available by Preacher and Leonardelli (2014), was therefore run for each of the attitudinal variables (Att.Ad, Att.Prod.Cat., Att.Brand, Att.Car.Model) on each of the two purchase intention variables (PI.General and PI.NissanLeaf). The Sobel's statistic and p-value (two-tailed) for each test is presented in **Table 10** below:

Table 10:

Sobel's test of mediating effect of attitudes upon purchase intentions

Independent Variable	Mediator	Dependent variable			
		PI.General		PI.NissanLeaf	
		Sobel's statistic	p-value	Sobel's statistic	p-value
Ad condition	Att.Ad	0.161	0.872	0.122	0.903
Ad condition	Att.Prod.Cat.	-0.417	0.676	-0.317	0.751
Ad condition	Att.Brand	1.196	0.232	1.084	0.278
Ad condition	Att.Car.Model	-0.580	0.562	1.636	0.102

However, as shown in the table, none of the attitudinal variables are significant mediators of the relationship between ad type and purchase intention for electric cars in general (PI.General). This means that hypothesis H3a, H3b, H3c, and H3d all are rejected. Likewise, as none of the attitudinal variables have a significant mediation effect on the relationship between ad type and purchase intention for the specific car model (PI.NissanLeaf), H4a, H4b, H4c and H4d are not supported either.

4.7 Results of hypotheses RQ2

In response to research question 2 about which factors influence the relationship between ad type and attitudes, three hypotheses were put forward (H5-H8). The results of these hypotheses will be presented in turn below.

4.7.1 Moderating effects of the relationship between ad type and attitudes (H5-H11)

In response to research question 2, about which factors influence the relationship between ad type and attitudes (Hypotheses H5-H8) an ANOVA was run for each of the attitudinal variables (i.e. attitudes was the independent variable) to test the interaction between ad type and the moderating variables. However, before running the ANOVA each of the moderating variables, Prod.Cat.Inv, PESI, and Perceived.Inc, were split at the median to compute a new variable indicating a low (=1) or high (=2) score. These were named Prod.Cat.Inv.Median.Split, PESI.Median.Split and Perceived.Inc.Median.Split. Finally, the ANOVA was run testing the interaction between these variables and ad type (Ad.Condition) on attitude toward the ad (Att.Ad), attitude toward the product category (Att.Prod.Category) attitude toward the brand (Att.Brand), and attitude toward the car model (Att.Car.Model). The full results are presented in Appendix 7.4.

Product category involvement (H5):

Hypothesis H5 focused on the moderating effect of product category involvement on the relationship between ad type and attitudes. The moderating effect is demonstrated by the differences in mean scores on the attitudinal variables between the high-and low involvement group when exposed to different ad types (i.e. treatment conditions), as shown in **Table 11:**

Table 11: Mean scores per ad type for high-and low groups of product category involvement

Ad type	Product Category involvement (1=Low,2=High)	Att.Ad		Att.Prod. Category		Att.Brand		Att.Car.Model	
		Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
1.00	1.00	4.661	.176	5.435	.201	4.426	.204	4.461	.229
	2.00	4.411	.137	5.632	.156	4.363	.159	4.326	.178
2.00	1.00	4.246	.165	4.762	.189	4.208	.192	4.246	.215
	2.00	4.683	.132	5.663	.151	4.546	.153	4.654	.171
3.00	1.00	4.761	.152	5.439	.173	4.335	.176	4.458	.197
	2.00	4.741	.127	5.605	.145	4.455	.147	4.541	.165
4.00	1.00	4.767	.154	4.980	.176	4.580	.178	4.740	.200
	2.00	4.895	.133	5.710	.152	4.640	.155	4.700	.173

However, to test whether the differences in **Table 11** were statistically significant, an ANOVA testing the interaction between product category involvement and ad type was run for each of the attitudinal variables.

Firstly, product category involvement (Prod.Cat.Involvement) did not significantly moderate the relationship between ad type and attitude toward the ad (ρ=.150). The hypothesis H5a is thus rejected. In contrast, product category involvement has an influence on the relationship between ad type and attitude toward the product category although only at 10 % significance level for the general moderating effect (ρ=.064). However, the groupwise means for the rational ad with an additional message as well as the emotional ad with an additional message, show that those who are highly involved with the product category have significantly more positive attitudes toward the product category than those who are less involved (their respective 95 % confidence intervals are non-overlapping). Thus product category involvement has a positive moderating effect upon attitude toward the product category, providing support for Hypothesis H5b. Nevertheless, product category involvement did not significantly moderate the effect of ad type on attitude toward the brand (ρ=.715) and attitude toward the car model (ρ=.539). Hypotheses H5c and H5d are therefore not supported. The full results can be found in Appendix 7.4.1

Pro-environmental self-identity (H6 and H7):

Hypothesis H6 and H7 focused on the moderating effect of pro-environmental self-identity (PESI) on the relationship between ad type and attitudes. The moderating effect is demonstrated by the differences in mean scores on the attitudinal variables between the high- and low PESI group when exposed to different ad types (i.e. treatment conditions), as shown in **Table 12:**

Table 12: Mean scores per ad type for high-and low groups of PESI

Ad type	PESI (1=Low,2=High)	Att.Ad		Att.Prod. Category		Att.Brand		Att.Car.Model	
		Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
1.00	1.00	4.383	.177	5.165	.201	3.965	.200	4.017	.226
	2.00	4.579	.137	5.795	.156	4.642	.156	4.595	.176
2.00	1.00	4.394	.152	5.071	.173	4.219	.173	4.297	.195
	2.00	4.617	.141	5.522	.160	4.583	.160	4.667	.181
3.00	1.00	4.607	.163	5.000	.185	4.207	.185	4.215	.209
	2.00	4.829	.122	5.837	.139	4.517	.139	4.671	.156
4.00	1.00	4.719	.163	5.156	.185	4.578	.185	4.681	.209
	2.00	4.916	.129	5.549	.147	4.637	.147	4.740	.165

However, to test whether the differences in **Table 12** were statistically significant, an ANOVA testing the interaction between PESI and ad type was run for each of the attitudinal variables.

Pro-environmental self-identity (PESI) did not significantly moderate the relationship between ad type and attitude toward the ad (ρ=1.000). The hypothesis H6a as well as H7 are thus rejected as it cannot be concluded whether rational ads are more effective for those scoring high on PESI than those who score low (H6a) nor whether ads with an additional message are less effective for those scoring high than those who score low (H7). PESI neither had a moderating effect on the relationship between ad type and attitude toward the product category (ρ=.534) in the overall model. However, the groupwise means for the rational ad with an additional message, show that those who score high on PESI have significantly more positive attitudes toward the product category than those who are less

involved (their respective 95 % confidence intervals are non-overlapping. This provides support for H6b while it is actually contradicting with H7b. PESI did not moderate the effects of ad type on attitude toward the brand (ρ=.364) nor on attitude toward the car model (ρ=.573). Hypotheses H6c and H6d as well as H7c and H7d are therefore not supported. The full results are presented in Appendix 7.4.2.

Perceived inconvenience (H8):

Hypothesis H8 focused on the moderating effect of perceived inconvenience on the relationship between ad type and attitudes. The moderating effect is demonstrated by the differences in mean scores on the attitudinal variables between the high-and low perceived inconvenience group when exposed to different ad types (i.e. treatment conditions), as shown in **Table 13:**

Table 13: Mean scores per ad type for high-and low groups of perceived inconvenience

Ad type	Perceived Inconvenience (1=Low,2=High)	Att.Ad		Att.Prod. Category		Att.Brand		Att.Car.Model	
		Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
1.00	1.00	4.521	.148	5.485	.168	4.376	.169	4.376	.188
	2.00	4.486	.161	5.643	.182	4.400	.183	4.379	.204
2.00	1.00	4.529	.153	5.581	.173	4.432	.174	4.490	.194
	2.00	4.500	.142	5.083	.161	4.400	.162	4.500	.180
3.00	1.00	4.867	.131	5.933	.149	4.652	.150	4.852	.167
	2.00	4.600	.148	5.030	.168	4.091	.169	4.067	.188
4.00	1.00	4.846	.136	5.574	.155	4.636	.155	4.805	.173
	2.00	4.832	.153	5.174	.173	4.587	.174	4.606	.194

However, to test whether the differences in **Table 13** were statistically significant, an ANOVA testing the interaction between product category involvement and ad type was run for each of the attitudinal variables.

Perceived inconvenience (Perceived.Inconv) did not have a significant moderating effect on the relationship between ad type on attitude toward the ad (ρ= .781). The hypothesis H8a is therefore not supported as it cannot be concluded whether emotional ads are less effective for those scoring high on perceived inconvenience compared to those scoring low. There was

a significant moderation of the effect on attitude toward the product category on the other hand (ρ=.019). The groupwise means show that when exposed to the plain emotional ad, the group scoring high on perceived inconvenience demonstrates a lower attitude toward the product category than those scoring low. The difference being significant at 5% level, this provides support for hypothesis H8b. Nevertheless, the 95 % confidence intervals for the groupwise means for the emotional ad with an additional message are overlapping, thus although the group high on perceived inconvenience again is scoring lower, the difference here is not significant at 5% level. Consequently, it can be concluded that hypothesis H8b is only partially supported, but that the trend is favoring its support.

Moreover, perceived inconvenience did not influence the effect of ad type on attitude toward the brand (ρ=.241), thus hypothesis H8c is rejected. On the other hand, it did have a moderating effect on the relationship between ad type and attitude toward the car model (ρ=.098), but only at the 10 % level. H8d can thus be accepted at 10 per cent significance level. The full results for perceived inconvenience is presented in Appendix 7.4.3.

Control variables

Finally, the moderating effects of the four control variables disposal of an electric car, previous experience with electric cars, age and gender were also assessed. The results for this variable is presented in Appendix 7.4.4.

Disposal of a car (Disposal.Car) did not have a significant moderating effect on either the relationships between ad type and attitude toward the ad (ρ=.377), the product category (ρ=.125), the brand (ρ=.530) nor toward the car model (ρ=.689). The results for disposal of a car are presented in Appendix 7.4.5.

Previous experience (Prev.Experience) on the other hand, significantly moderated the relationship between ad type and attitude toward the car model ((ρ=.026). However, the confidence intervals for the groupwise means are slightly overlapping for all ad types, making it impossible to conclude the direction of the moderation effect. Previous experience did not influence any of the relationships between ad type and attitudes toward the ad, the product category, or attitude toward the brand, with the p-values being ρ=.141, ρ=.156, and ρ=.197 respectively. The results for previous experience are available in Appendix 7.4.6.

Age group did neither influence the relationships with either attitudes toward the ad, the product category, the brand or toward the car model, with the p-values being ρ=.497, ρ=.288, ρ=.714 and ρ=.759 respectively. The results for age group are presented in Appendix 7.4.7.

Finally, gender did not influence the relationships with attitudes toward the ad, the product category, or toward the brand, with the p-values being ρ=.510, ρ=.753, ρ=.735 respectively. Although gender is not mediating the effect of ad type on these attitudinal variables, it should be mentioned that females demonstrate significantly more positive attitudes towards both the ad (ρ=.010), the brand (ρ=.002), the product category (ρ=.053, thus significant at 10% level only). However, for all these attitudinal variables there is also strong trend that emotional ads generate more positive attitudes among females than among the males. At last, in the overall model gender did not affect the relationship with attitude toward the car model (ρ=.729). However the groupwise means showed a significantly higher mean score on attitude toward the car model for the females than the males for the emotional ad with an additional message (the 95 % confidence intervals for the respective means are not overlapping thus the difference is significant at 5 % level). Regardless of ad type, it should also be noted that females demonstrate more positive attitudes toward the car model ρ=.000, and the same trend as for the three other attitudinal variables, also apply to attitude toward the car model. The results for gender are presented in Appendix 7.4.7.

5. DISCUSSION

In chapter 2 I developed a set of hypotheses related to each of the two main research questions for this thesis. The results of these hypotheses were presented in chapter 4. In this chapter I will first briefly recall the research questions and summarize the results of their associated hypotheses. Second, I will discuss the theoretical implications of my results in the light of the literature examined in chapter 2. Finally, I will provide some managerial implications of my findings.

5.1 Summary of results of the hypotheses

Research question 1 (Hypotheses H1-H4):

Research question 1 addressed what type of advertisement is the most effective in influencing attitudes and purchase intentions. **Table 14** shows which of the hypotheses related to research question 1, are supported, and at which significance level:

Table 14: Hypotheses RQ1

	Supported (yes or no)			
Hypothesis	Attitude toward the ad (a)	Attitude toward the product category (b)	Attitude toward the brand (c)	Attitude toward the car model (d)
H1	Yes*	No	No	No
H2	No	No	No	No
H3	No	No	No	No
H4	No	No	No	No

*= Hypothesis supported at 0.05 significance level (2-tailed). **= Hypothesis supported at 0.10 significance level (2-tailed).

The hypotheses H1 and H2 focused on the first step in the model, namely the path from ad type to attitudes. Firstly, hypotheses H1a through H1d addressed whether emotional ads in general are more effective than rational ads when advertising for electric cars. There was support for hypothesis H1a, that emotional ads were more effective in generating positive attitudes toward the ad. However, this was not the case for attitudes toward the product category, the brand and the car model, causing hypotheses H1b, H1c and H1d respectively, to be rejected.

Secondly, hypotheses H2a through H2d addressed whether emotional ads with an additional, non-environmental message where more effective than emotional ads without an additional message, in other words whether adding a rational message would improve attitudes. This was not the case for any of the attitudinal variables, causing H2a through H2d to all be rejected.

The hypotheses H3 and H4 focused on the second step of the model, namely the mediating effect of attitudes on the relationship between ad type and purchase intentions. H3a through H3d addressed purchase intentions for electric cars in general. However, no significant mediation was found for any of the attitudinal variables, causing H3a through H3d to be all rejected. The same applies to H4 which addressed purchase intentions for the specific car model, namely the Nissan Leaf. Thus hypotheses H4a through H4d are all rejected as well.

Research question 2 (Hypotheses H5-H11):

Research question 2 addressed the factors potentially moderating the relationship between ad type and the attitudinal variables. **Table 15** shows which of the hypotheses related to research question 2 that are supported, and at which significance level:

Table 15: Hypotheses RQ2

Supported (yes or no)

Hypothesis	Attitude toward the ad (a)	Attitude toward the product category (b)	Attitude toward the brand (c)	Attitude toward the car model (d)
H5	No	Yes*	No	No
H6	No	Yes*	No	No
H7	No	No (contradicted)	No	No
H8	No	Partially supported*	No	Yes**

*= Hypothesis supported at 0.05 significance level (2-tailed). **= Hypothesis supported at 0.10 significance level (2-tailed).

Firstly, hypotheses H5a through H5d addressed the potential influence of product category involvement. It did not moderate the relationship between ad type and attitude toward the ad thus hypothesis H5a was rejected. In contrast, it did influence attitude toward the product category, providing support for hypothesis H5b. However, product category involvement did not significantly moderate the effect of ad type on attitude toward the brand or the car model, causing hypotheses H5c and H5d to be rejected.

Secondly, hypotheses H6a through H6d as well as H7a through H7d addressed the potential moderating effect of pro-environmental self-identity (PESI). It did not significantly moderate the relationship between ad type and attitude toward the causing hypotheses H6a as well as H7 to be rejected. The groupwise means for the interaction between ad type and PESI suggested there was a moderating effect on the relationship between ad type and attitude toward the product category, providing support for H6b while contradicting with H7b. PESI did not moderate the effects of ad type on attitude toward the brand or the car model, causing hypotheses H6c and H6d as well as H7c and H7d to be rejected.

Finally, hypotheses H8a through H8d addressed the potential moderating effect of perceived inconvenience. It did not have a significant moderating effect on the relationship between ad type and attitude toward the ad. The hypothesis H8a is therefore not supported. In contrast, it significantly moderated the effect of the plain emotional ad on attitude toward the product category, but not the effect of the emotional ad with an additional message. Consequently, hypothesis H8b was only partially supported. Perceived inconvenience did not influence the effect of ad type on attitude toward the brand, causing hypothesis H8c to be rejected. However, it influenced the effect upon attitude toward the car model at the 10 % level, providing support for H8d.

5.2 THEORETICAL IMPLICATIONS

Emotional vs. rational ads (H1)

The fact that H1a is supported, while H1b, H1c, and H1d are rejected shows that the emotional ads on average are more effective than rational ads in producing positive attitudes toward the ad only. That there is a difference in these two types of ad appeals in terms of positive reactions in general is consistent with the findings by several previous researchers (e.g. Goldberg and Gorn, 1987; Page et al., 1990; Vakratsas and Ambler, 1999 and Hartmann and Apaolaza-Ibáñez, 2005). However, specifically regarding the generation of more positive attitudes toward the ad, these results are consistent with Matthes et al. (2013), who found that emotional and combined appeals (in this case the emotional ads with an additional, non-environmental message) had a significant and stronger influence on attitude toward the ad and attitude toward the brand, than functional appeals.

Moreover, as the additional message is framed as a gain, the fact that the emotional ad with an additional message performed better than the rational one with an additional message, strengthens the finding of White et al. (2011) that gain-framed messages were more effective when paired with high construal level, abstract mind-sets. The emotional ad has a higher construal level than the rational as which is more concrete, confirming that the additional message is more effective when paired with the high-construal level emotional ad.

Nevertheless hypotheses H1b, H1c, and H1d are rejected, indicating that there are no differences in the emotional ads' ability to generate positive attitudes toward the product category, the brand or toward the car model, compared to the rational ads. This suggests that that rational ads are just as effective as emotional ads when it comes to influences these attitudes. The fact that H1c is rejected thus contradicts with the latter finding by Matthes et al. (2013) that the combined ad appeal produces more favorable attitudes toward the brand than the functional appeal.

Emotional ads with an additional message vs. without (H2):

There were no significant differences in either attitude toward the ad, the product category, the brand, or toward the car model between the emotional ad containing an additional message and the one that did not. Consequently, the hypotheses H2a, H2b, H2c, and H2d all had to be rejected. Contrary to my expectations, this signals that including an additional, non-environmental message to an emotional ad does not improve consumer's attitudes. As Ha (1998) argued that emotional appeals had to be supported by rational messages to be effective I expected that including an additional, non-environmental message would enhance attitudes toward the ad (H2a), as well as toward the product category (H2b), the brand (H2c) and the car model (H2d). The fact that these hypotheses are rejected is therefore surprising, and it contradicts with Ha (1998). It also contradicts with the findings of Hartmann and Apaolaza-Ibáñez (2005) who found that the most effective advertising strategy for green products was to combine functional attributes with emotional benefits. The reason for this latter contradiction might be that the additional message does not precisely express functional attributes as in Hartmann and Apaolaza-Ibáñez's (2005) study, but rather a personal benefit resulting from the functional attributes of the car.

Mediating effect of attitudes on purchase intentions (H3 and H4):

When it comes to the two hypotheses regarding the mediating effect of attitudes on the relationship between ad type and purchase intention, none of the attitudinal variables turned out to be significant mediators. As attitudes did not mediate the influence on purchase intention for electric cars in general (PI.General), hypothesis H4a, H4b, H4c, and H4d were rejected. Likewise, as none of the attitudinal variables mediated the influence on purchase intention for the specific car model (PI.NissanLeaf), H5a, H5b, H5c and H5d were also rejected. These results contradicts with the whole logic of Ajzen's theory of planned behaviour (TPB) framework and the many empirical studies supporting this theory, that various background factors influence purchase intentions through attitudes. Advertising can be placed in the information category of background factors, which according to the TPB should generate behavioural, normative and control beliefs, which in turn should influence attitudes, the subjective norm, and perceived behaviour control, together influencing behavioural intention (in this case purchase intention) (Ajzen, 1991). It might therefore be that specifically for electric cars, the subjective norm and perceived behavioural control play a greater role than attitudes in mediating the effects of the advertisement on purchase intentions. However, this contradicts with Bamberg and Möser (2007) who found that attitudes had a stronger correlation with both behavioural intentions and behaviour, than the social norm and PBC, and that empirical studies applying the TPB often find the social norm to exert no direct effect on behavioural intention after controlling for the effects of attitudes and PBC. Moreover, it contradicts with the finding of Withmarsh and O'Neill (2010) who found that attitudes was the only significant predictor of behavioural intentions, using a standard TPB model to predict intentions for carbon-offsetting behaviour, which like driving electric cars is considered a pro-environmental behaviour. However, a possible explanation for this might be that purchase intentions for cars, which often represent status symbols (Hoyer and MacInnis, 2008), are more affected by the social norm than carbon-offsetting behaviour.

Moderating effect of Product Category Involvement (H5):

Firstly, as product category involvement did not significantly moderate the relationship between ad type and attitude toward the ad, hypothesis H5a was rejected. This contradicts with the logic of Petty and Caioppo's Elaboration Likelihood Model (ELM) (1981a, 1981b). The rational ads should according to the ELM have higher personal relevance for the highly

involved consumers than the less involved. Thus when the message emphasizes factual arguments (i.e. is rational) it should be more effective for the highly involved consumers than for those less involved. The result is very close to being significant at 10 per cent level however, and the groupwise means show that there is a trend pointing towards a positive moderating effect. The trend is most apparent for the plain rational ad, where the confidence intervals for means of the high and low involvement group are just barely overlapping. If the sample had been larger, it is therefore likely that the high involvement group would show significantly more positive attitudes toward the ad than the low involvement group. The confidence intervals also suggest a trend towards that the low involvement group showing more positive attitudes when exposed to the emotional ad with an additional message compared to the rational ad with an additional message.

In contrast, there was a significant positive influence of product category involvement on the relationship between ad type and attitude toward the product category. For the rational ad with an additional message as well as the emotional ad with an additional message, those who are highly involved with the product category demonstrated more positive attitudes toward the product category than those who are less involved, which provided support for Hypothesis H5b. Hence, this finding supports the ELM as well as Vakratsas and Ambler's (1999) claim that involvement moderates advertising effects.

Nevertheless, product category involvement did not significantly moderate the effect of ad type on attitude toward the brand nor attitude toward the car model, causing hypotheses H5c and H5d to be rejected. This contradicts with the finding of Dens and De Pelsmacker (2010) that product category involvement interacts with ad appeal (informational, positive emotional and negative emotional) on attitudes towards the product (i.e. in this case the car model) and the brand. They found that informational (i.e. rational) appeals performed better when involvement was high, while positive emotional appeals performed better when involvement was low. My results however show a trend towards the emotional ad with an additional message generating more positive attitudes than the rational ad with an additional message for the low involvement group. This trend is thus in line with Dens and De Pelsmacker (2010).

Moderating effect of Pro-environmental self-identity (H6 and H7):

Firstly, pro-environmental self-identity (PESI) did not significantly moderate the relationship between ad type and attitude toward the ad, causing hypothesis H6a as well as H7 to be rejected. This contradicts with the claim of Hartmann and Apaolaza-Ibáñes (2005), that involvement with the environment moderates attitude formation in processing of green ads. This may be due to the fact that PESI is a somewhat different operationalization of green involvement, than the one used by Hartmann and Apaolaza-Ibáñes (2005).

However, PESI had a moderating effect on the relationship between ad type and attitude toward the product category, showing that for the rational ad with an additional message, those who score high on PESI have more positive attitudes toward the product category than those who are less involved. This provided support for H6b, while in fact contradicting with H7b. The fact that H6b is supported is in line with the logic of Petty and Caioppo's (1981a; 1981b) ELM. However, if one should still believe in Ajzen's (1991) TBP framework that attitudes mediate the relationship between ad type and purchase intentions, the fact that H7b is rejected is opposing to the findings of Grimmer and Wolley (2012). They found that people with low environmental affect (similar to PESI) demonstrated higher purchase intention when a personal benefit message was used compared to high environmental affect consumers. If the effect of ad type on purchase intentions is mediated by attitudes, Grimmer and Wolley's (2012) finding should imply that consumers with high environmental affect have less positive attitudes when the additional message represents a personal benefit. The rejection of H7b is thus contradicting this logic. It is also contradicting with attribution theory (cf. Settle and Golden, 1974). According to this theory, the high PESI consumers should demonstrate less positive attitudes following from their greater likelihood to question the advertiser's motives. Likewise, the rejection of H7b is also contradicting with identity theory (cf. Stets and Burke, 2000), suggesting that consumers use products to categorize themselves into social categories. This should imply that high PESI consumers would respond less favourably when presented an additional message containing a personal benefit than an environmental benefit, as purchasing the car for personal benefit reasons rather than its environmental benefits, would reduce their identity as an environmentally friendly consumers.

Finally, PESI did not moderate the effects of ad type on attitude toward the brand nor on attitude toward the car model causing hypotheses H6c and H6d as well as H7c and H7d to be

rejected. Again, this is contradicting with the general claim of Hartmann and Apaolaza-Ibáñes (2005). The rejection of H7c and H7d is also again contradicting with the findings of Grimmer and Wolley (2012), as well as with attribution theory and identity theory. However, the lack of moderation of PESI on the relationship with attitude toward the brand is actually consistent with Matthes et al. (2013), although they are using another operationalization of green involvement. They found no impact of green involvement on the relationship between ad type and brand attitude for the emotional- and combined ad types. Nevertheless, they found an impact for functional (i.e. rational) appeals, which my finding therefore does not support.

Moderating effect of Perceived Inconvenience (H8):

Perceived inconvenience did not have a significant moderating effect on the relationship between ad type on attitude toward the ad, causing hypothesis H8a to be rejected. This means that the extent to which consumer's perceive the product as inconvenient does not matter for the relationship between ad type and attitude toward the ad itself.

There was a significant moderation of the effect on attitude toward the product category on the other hand. When exposed to the plain emotional ad, the group scoring high on perceived inconvenience demonstrated a lower attitude toward the product category than those scoring low. Although this was not the case for the emotional ad with an additional message, hypothesis H8b was still partially supported. If following the logic of Ajzen's (1991) TPB framework, this is in line with the finding of McCarty and Shrum (1994). They found that consumer's with high inconvenience beliefs had lower intentions to recycle, which according to the TPB should imply that they also have a more negative attitude towards recycling.

Hence, consumers with a strong belief that electric cars are inconvenient should demonstrate less positive attitudes toward the product category when exposed to the emotional ad, than those who have weaker inconvenience beliefs, which is indeed what my finding is suggesting.

Nevertheless, perceived inconvenience did not influence the effect of ad type on attitude toward the brand and attitude toward the car model, causing hypotheses H8c and H8d to be rejected. This signals that inconvenience beliefs do not interact with ad type when it comes to the ad's ability to influence people's attitudes towards the brand and the specific car model.

Effects of control variables

Disposal of a car did not have a significant moderating effect on the relationships between ad type and any of the attitudinal variables. This might be due to the fact that the variable disposal of a car was not normally distributed, i.e. had a Skewness value above the absolute value of 1, (cf. Appendix 3.6), as very few of the respondents report that they dispose a car.

Previous experience on the other hand, significantly moderated the relationship between ad type and attitude toward the car model. However, the confidence intervals for the groupwise means overlapped slightly for all ad types, making it impossible to conclude the direction of the moderation effect. Previous experience did not influence any of the relationships between ad type and attitudes toward the ad, the product category, or attitude toward the brand on the other hand. This might be due to the fact that the majority of the respondents have either very little or no experience at all with electric cars (cf. Appendix 3.1), which may have biased the results.

Age group did not moderate the relationships between ad type and any of the attitudinal variables either. This is probably due to the fact that the majority of the respondents are concentrated more or less within the same age group (cf. Appendix 3.1), which causes age differences to be marginal.

Finally, gender did not influence the relationships with either attitudes toward the ad, the product category, or the brand. It did however have a significant influence on the effect on attitude toward the car model, with the emotional ad with an additional message generating more positive attitudes toward the car model among the females than the males. Although not significant there was also a strong trend that emotional ads generate more positive attitudes among females than among the males for the other attitudinal variables. This is surprising, given that Rota-Biadici and Domeniconi (2009) stated that men tend to choose cars based on emotions, while women, take on a more rational approach looking at all possible advantages and disadvantages of the alternatives.

5.3 Managerial Implications

Although many of them were non-significant, my results have several implications that are relevant to marketers of electric cars and advertising agencies.

A first important implication follows from my finding that for the total sample an emotional ad combined with an additional, non-environmental message results in a more positive attitudes toward the ad than rational ads regardless of the rational ad being with or without an additional message (cf. 4.3.1). This finding does not take into account the effect of the moderating factors, but provides an indication that emotional ads in general are more effective than rational ads when advertising for electric cars. This implies that when marketers of electric cars aim to reach a broader audience and do not intend to adjust for these potential moderating factors (for instance when not targeting consumers who are particularly involved with the product category or a specific gender), emotional ads should be the preferred ad type. In such general situations, it does not improve attitudes toward the ad by adding a rational, non-environmental message to an emotional ad. It should be noted though, that although emotional ads perform better than rational ads on average, my results do not allow to conclude whether a plain emotional ad (i.e. without an additional message) will perform better than a plain rational ad. However, my results do show that when an additional message is added to both, the emotional ad performs better than the rational ad when it comes to generating positive attitudes toward the ad (cf. 4.3.1). Nevertheless, when targeting a specific group of consumers (i.e. taking into account the moderating factors) the story becomes somewhat different. Another implication to marketers is therefore related to which ad type to use when, depending on the characteristics of the target group.

Firstly, although not significant, my results show that there is trend towards a positive influence of product category involvement on the relationship between ad type and attitude toward the ad. The trend is most apparent for the plain rational ad, with the high involvement group showing more positive attitudes toward the ad than the low involvement group. There is also a trend pointing towards that the low involvement group show more positive attitudes when exposed to an emotional ad compared to a rational ad, with the trend being most apparent for the emotional ad with an additional message compared to the rational ad with an additional message. This implies that when targeting high involvement consumers (for instance when advertising in a car magazine or web community for electric cars), a rational

ad can be used, while when targeting low involvement consumers, emotional ads should be the preferred ad type. Moreover, my finding that product category involvement has a significant positive influence on the relationship between ad type and attitudes toward the product category has implications for what ad type to use when targeting consumers who are highly involved as opposed to when targeting those who are less involved with the product category. My results showed that when exposed to the rational ad with an additional message or the emotional ad with an additional message those who are highly involved with the product category have significantly more positive attitudes toward the product category than those who are less involved (cf 4.3.5). This implies that when targeting highly involved consumers an additional, non-environmental message can be included. In contrast, when targeting less involved consumers, who are less motivated to process additional factual information in the ad, the additional message should be omitted. Focus should rather be on an appealing image or short catchphrase, in order to attract the few seconds of attention the low-involvement consumer is likely to allocate to the ad.

Secondly, my finding that pro-environmental self-identity (PESI) has a positive influence on the relationship between ad type and attitudes toward the brand and the car model has implications for the decision of which ad type to use when targeting high PESI consumers as opposed to low PESI consumers. My results showed that consumers with a low PESI score demonstrated more positive attitudes toward the brand as well as toward the car model, when exposed to an emotional ad with an additional message, compared to a plain rational ad (cf. 4.3.5). This implies that when attempting to target consumer's who to a less extent consider themselves as environmentally friendly consumers (i.e. low PESI), which most likely are also more difficult to persuade than high PESI consumers, emotional ads with an additional message demonstrating personal benefits of using the car should be the preferred ad type.

Third, an implication follows from my finding that perceived inconvenience has an influence on the relationship between ad type and attitude toward the product category as well as toward the car model. As the moderating effect is negative, this indicates that the more people perceive the product category displayed in the ad as inconvenient to use (i.e. the higher perceived inconvenience), the less effective are the plain emotional ads in generating a positive attitude toward the product category. This suggests that when aiming to target people who have strong inconvenience beliefs, plain rational ads should be preferred over plain emotional ads. In line with McCarthy and Shrum's (1994) recommendation of

addressing the consumer's inconvenience belief, and stressing that the behaviour in question is not at all inconvenient, the ad should use fact-based arguments to express that electric cars are not inconvenient to drive, in order to persuade this type of consumers.

A final implication for managers is which ad type to use when targeting men as opposed to women. My findings showed that gender influenced the relationships between ad type and attitude toward the car model, with the emotional ad with an additional message generating more positive attitudes toward the car model among females than the males. There was also a strong trend that the emotional ads generally were more effective for females than for males, in influencing the other attitudinal variables, as well as that emotional ads generally were more effective than rational ads for females. This implies that when the ad is targeted towards women (for instance when advertising in women's magazines), emotional ads should be preferred over rational ads. On the contrary, my data do not allow to make a specific recommendation regarding which ad type to use for males as there is no consistent trend that rational ads are more effective than emotional ads or vice versa for males.

6. LIMITATIONS AND FUTURE RESEARCH

In this chapter I will first discuss the strengths and limitations of my study. Second, I will assess my study's reliability and validity. Finally, I will provide some suggestions for future research.

6.1 Strenghts and limitations

Firstly, the advertisements used in this study depicted an existing, and well-known brand and car model, namely the Nissan Leaf. This represents a strength of the study compared to for instance those by Hartmann and Apaolaza-Ibáñez (2012) and Matthes et al. (2013), which uses a fictious brand, as it creates a more realistic experience of advertisement exposure. However, using a real brand also has its limitations. Respondents' pre-existing knowledge and attitudes about the brand and the car model may have affected the results. This could have been corrected for by using a fictious brand name, but due to the difficulties of designing a credible logo and creating an animated picture of a product as complicated as a car, the Nissan Leaf was used.

Secondly, the sample size can be considered both a weakness and strength of the study. Compared to general research conventions, the number of respondents (n= 273) can be considered rather low. However, given that the study is part of a master thesis, the sample size can be considered relatively high. Having a larger sample, increases the chance of finding statistically significant results and reduces the margins of errors (Cohen, 1992). Nevertheless, being a master thesis the study also has certain limitations in terms of time and resources available for conducting the study. If it had not been for these constraints it would have been possible to increase the sample size further. In line with Cohen (1992), if the sample had been larger I would probably have obtained more significant results.

Third, a strength lies in that the respondents were recruited at the Norwegian School of Economics (NHH). As they all attend the same school and are mostly within the same age group, the student population can be considered a relatively internally homogenous group although they may attend different study programs and be at different stages of their study. This represents a strength because when the sample is relatively homogenous it eliminates some of the variance that might be caused by uncontrolled factors other than the measured

variables, and which are not related to exposure of the different ads. There is however a weakness with using a homogenous sample from a given subgroup in a population, compared to using a representative sample from the whole population. If I had used a representative sample from the Norwegian population, my results would to a greater extent be generalizable to the whole Norwegian population. Nevertheless, as mentioned before, this was not possible given the time and resource constraints of the study.

There is also a second limitation associated with using a student sample. Students usually have a low income, and most likely this also applies to students at NHH. Although some students have part-time jobs besides school, I assume that the majority of the respondents in my study do not have high incomes. They are therefore most likely not in the position to purchase a new car at the moment. This might have influenced the relevance of the topic to the respondents, and consequently their answers, in particular the purchase intention measures.

Another limitation of my study is that it is conducted as a cross-sectional study, gathering data from the sample at a given point in time (Johannessen et al., 2011). This also implies that the study only involves a one-shot exposure to the advertisements. With only a single exposure it is not possible to see whether attitudes would have changed with repeated exposure to the same ad. Ideally, in order to examine the longer-term effects of repeated exposure, the study should have been conducted as a longitudinal study. If this had been possible, the effects of ad type upon attitude toward the brand and attitude toward the car model would have been more likely to be significant. However, again due to the nature of the study as a master thesis and the resulting constraints, a longitudinal study was not possible to conduct.

A final limitation is that all my hypotheses are based on findings from studies conducted in other countries than Norway. It might be that Norwegian consumers, and hence my sample, differ substantially from the samples used in these studies, especially given that electric cars has a very favourable position in Norway due to the generous public policy schemes. However, the lack of Norwegian research on advertising for electric cars unfortunately made it impossible to base the hypotheses on Norwegian findings.

6.2 Reliability

Reliability refers to the extent to which the research procedures of a study can be repeated, and to which extent repeating it would produce consistent results (Johannessen, 2011). Furthermore, a distinction is made between *internal reliability* and *external reliability*. In the following, I will therefore discuss these two in turn.

6.2.1 Internal reliability

Internal reliability refers to the degree to which the items of the measurement instruments are measuring a single construct, i.e. the degree of internal consistency of the items. Internal reliability is particularly important to consider when using measurement scales with multiple items (Bryman and Cramer, 2009). For the items to be internally consistent it requires the respondents to correctly understand that they belong to the same construct. I therefore measured the internal consistency for the constructs containing more than one item by testing their Chronbach's Alpha values (cf. chapter 4.3). The Chronbach's Alpha values are available in Appendix 5. As they are all acceptable according to common research practice (Santos, 1999), I consider the internal reliability of my constructs as satisfactory.

6.2.2 External reliability

External reliability of a study refers to the consistency of the measures over time (Bryman and Cramer 2009). This implies that external reliability is low if the same respondents will respond differently if the same measurements are undertaken at a later point in time. A main threat to external validity is that of systematic errors or biases (Trochim, 2006), which according to Saunders et al. (2009) can be divided into four categories; *observer bias, observer error, respondent bias* and *respondent error*. As I have used an online survey with structured, close-ended questions to collect my data, it avoids the subjective interpretation associated with open-ended questions, hence limiting observer bias. Moreover, as the data were imported directly into SPSS, it avoids errors that could have occurred if the data were to be plotted manually.

However, respondent bias may still have occurred. Respondent bias may occur if respondents adapt their answers according to what they believe is the "correct" answer or what they believe the researcher is looking for. The first often is referred to as *social*

desirability bias (SDB), and occurs because people want to appear different than they are or appear to be behaving in a socially desirable way, in order to place themselves in a more favorable position towards the researcher, but it can also occur unconsciously (Alfnes, 2011). Social desirability bias is especially relevant to pro-environmental behaviours, and therefore to this study. Moreover, according to Fisher and Katz (2000), SDB can affect the measurement of both personality variables and attitudes. The questions measuring attitudes as well as the one measuring pro-environmental self-identity, thus have a risk of being subject to this type of bias. In order to limit the effect of SDB however, I notified respondents in the email with the invitation to the survey, that their answers would be entirely anonymous. The second type of respondent bias, that respondents adapt their answers according to what they believe the researcher is looking for, was limited by hiding the motive for the study. In the survey invitation there was thus no mentioning of the objective of the study. Finally, to avoid respondent error I tried to formulate the survey questions carefully so as to avoid misunderstandings. However, there is still some risk that respondent error may have occurred.

Despite the above-mentioned weaknesses, I find that my study overall demonstrates a satisfactory level of both internal and external reliability. I therefore find it reasonable to conclude that the measures used in my study can be used for future research purposes.

6.3 Validity

According to Trochim (2006), there are several types of validity of a study, which can be divided into three main categories; *statistical conclusion validity, internal validity* and *external validity.* These will therefore be discussed in turn.

6.3.1 Statistical conclusion validity

According to Austin et al. (1998) statistical conclusion validity refers to the degree to which conclusions drawn about effects or causal relations is reflecting a true effect in the population or whether they are simply due to random events. Statistical conclusion validity deals with an integrative assessment of a study's statistical power, significance testing and effect sizes.

Firstly, statistical power refers to *"the probability that a statistical test will correctly reject a false null hypothesis"* (Austin et al., 1998, p. 167). Statistical power can be ensured by using adequate sampling procedures and sample size. Smaller samples implies lower statistical power, which increased risk of committing a *Type II error*, i.e. a failure to reject a false null hypothesis. As my study has a relatively small sample, it might have a low degree of statistical power, leading to more non-significant results.

Secondly, significance testing deals with selecting the appropriate statistical tests for testing significance as well as specifying an appropriate significance level (α) which can be defined as specifying the acceptable level of risk that a *Type I error* is made*,* i.e. *"rejecting the null hypothesis when it is true in the population"* (Austin et al., 1998, p. 178). Regarding the first I have used widely used statistical tests such as linear regressions and ANOVAs, which are considered to be appropriate for significance testing. However, I have minimized the number of statistical tests by only using one type of test for each hypothesis, which according to Austin et al., (1998) reduces the risk of committing a Type I error. Regarding the appropriate significance level, the authors further recommend using more stringent significance levels when possible (e.g. when having a large sample). However, given that my study is a master thesis and has a relatively small sample, I have accepted some of the hypotheses at 10 per cent significance level. Nevertheless, using a less stringent significance level decreases the risk that I have committed type II errors.

Probably the greatest threat to statistical conclusion validity is that of violating underlying assumptions of the statistical techniques employed (Trochim, 2006). All the assumptions underlying ANOVA was met (cf. chapter 4.5.1) and most of the assumptions of multiple linear regressions were met (cf. chapter 4.5.2). However, both the ANOVA and multiple linear regression are said to be quite robust against violations of assumptions (Weinberg and Abramowitz, 2008). In addition, multiple linear regressions were only used to obtain the regression coefficients necessary to conduct Sobel's test for hypotheses H3 and H4, which constitutes only a small part of my study. Thus, although some of the assumptions were violated, I do not consider this a large threat to the overall conclusion validity of my study.

Another threat to statistical conclusion validity exists when measures of the dependent or the independent variables are not reliable (Trochim, 2006). However, I have used existing measurement scales that already have been applied in previous research, for all my variables

except the control variables. Reliability coefficients (Chronbach's alpha) were provided for all scales where this was available in the papers they were taken from, and these were reliable according to common research norms. Moreover, as mentioned in relation to internal reliability, I did an additional test of the internal consistency of my constructs. This should therefore not threaten the statistical conclusion validity of my study.

To sum up, the conclusions drawn from my study seem reasonable and are based on existing theory. Overall, I therefore consider the statistical conclusion validity of the study to be acceptable.

6.3.2 Internal validity

Internal validity refers to the extent to which a study is able to prove causal relations and the mechanisms by which the variables influence each other. In order to do so, the study needs to be measuring what it is intended to measure (Johannessen et al., 2011). According to Muijs (2010), there are three important aspects of internal validity; *content validity, criterion-related validity*, and *construct validity*.

Content validity

Content validity refers to the degree to which the content of the survey items are in accordance with the theoretical concept to be measured (Muijs, 2010). As I have conducted an extensive literature review on the concepts I intended to study, and the instruments (i.e. the ads) and the survey items are carefully designed based on findings from previous research, I consider the content validity of my research to be relatively high.

Criterion validity

Criterion validity refers to the performance of a study's measures against a given criterion (Trochim, 2006). There are two types of criterion validity; *predictive validity* and *concurrent validity*. The first refers to a measure's *"ability to predict something it should theoretically be able to predict"* while the second refers to its *"ability to distinguish between groups that it should theoretically be able to distinguish between"* (Trochim, 2006). As I did not find any significant mediating effects of attitudes on the relationship between ad type and purchase intentions, my operationalization of ad type and attitudes were not able to predict purchase intentions, which may indicate that I have a problem with predictive validity. However, the mean attitude scores were significantly different between the rational and

emotional ad types, as well as between the high- and low groups for product category involvement, pro-environmental self-identity and perceived inconvenience. I consider this an indication that the concurrent validity of my measures are adequate.

Construct validity

According to Johannessen et al. (2011) construct validity deals with the extent to which there is coherence between the operationalization of the measurements (i.e. the constructs) and what the study is supposed to measure. As mentioned above, I have used existing measurement scales that already have been applied in previous research, and their coefficients for internal consistency (Chronbach's alpha) showed that these were reliable according to common research norms. Although the different measurement scales have not been used in conjunction with each other before, using existing and empirically tested scales, helps improve the construct validity of my research.

Threats to internal validity in general

Johannessen et al. (2011) claim that experiments normally have high internal validity. However, the authors also mention several threats to the internal validity of experiments. Nevertheless, the only one that is relevant to my study is that of *experimental mortality*. Experimental mortality refers to that some respondents drop out of an experiment before it is finished (Johannessen et al., 2011). As mentioned in chapter 4.1, a large number of respondents did not complete the survey. This implies that I cannot be certain that the answers of those who did not complete the survey, or not responded to it at all, are coherent with the results from those who did complete it. Moreover, according to Johannessen et al. (2011) experimental mortality becomes a threat to internal validity when the number of respondents who do not complete the experiment differs across the comparison groups. As the responses that were exposed to emotional ads have a somewhat higher completion rate than those exposed to the rational ads, this might be a threat to the internal validity of my research and must hence be considered a weakness of the study. Furthermore, discarding data from uncompleted responses can also be a threat to *external validity*, which will discussed next.

6.3.3 External validity

External validity refers to the extent to which the results from a study are generalizable to other contexts (Johannessen et al., 2011). According to Johannessen et al. (2011), there is a

threat to external validity if the individuals studied systematically differ from the individuals of the population the results are to be generalized to. Moreover, the authors claim that convenience sampling may reduce the likelihood that the sample is representative to the whole population, which also limits external validity. As the sampling method used for this study was a convenience sampling, recruiting respondents only from the Norwegian School of Economics (NHH), there is thus a risk that the individuals studied differ from those of the whole Norwegian population. For instance, students tend to have a low income and are most likely not in the position to purchase a new car, which might prevent the results to be generalized to higher income members of the population. My results can therefore only be generalized to populations that resemble the student population at NHH, for instance to student populations at other business schools in Norway. Nevertheless, my study still provides interesting results given that students represent the next generation of car buyers. As business students are likely to have an above-average income when they have entered working life, this segment may be highly interesting for marketers of electric cars in a few years time.

A second threat to external validity results from a difference in the setting or context, such as changes in the legal environment (Stock and Watson, 2012). As electric cars currently have a very favorable position in Norway due to the generous public policy schemes, it might be that responses will be different if these are removed in the future (i.e. if the legal environment changes), which may have implications for the external validity of my findings.

Moreover, another type of external validity is that of *ecological validity*, which refers to the extent to which results can be generalized from one group to another (Saunders et al., 2009). Saunders et al. (2009) claim that in general, laboratory experiments have low ecological validity since the phenomenon is studied outside its natural context. As my study is conducted more as a laboratory experiment than a natural experiment, it can therefore be considered to have relatively low ecological validity. However, the fact that I use a real brand and a real product in the advertisement may improve the ecological validity to some extent.

6.4 Suggestions for further research

As very few studies have been done upon the relative effectiveness of emotional and rational ad appeals in the context of electric cars, there is still a need for studies investigating this topic on a larger sample as well as for other populations than Norwegian consumers.

I found no significant mediating effect of attitudes on the relationship between ad type and purchase intentions. If maintaining confidence in Ajzen's (1991) theory of planned behaviour framework, there should however be a link between attitude and intention. The role of this link in the relationship between ad type and purchase intention is therefore something that should be looked more into in future studies. Moreover, such studies should also take into account the moderating factors of the relationship between ad type and attitudes identified in this thesis (cf. chapter 4.7.1). How these factors affect the attitude-mediated relationship between ad type and purchase intention, needs to be tested by applying more advanced statistical techniques that are able to take into account more complex relationships (e.g. structural equation modelling).

In my study I do not examine real purchase behaviour as this does not make much sense when not using a real ad, and exposure to the ad not happens in a real-world media setting with possibilities of repeated exposure, but in an experimental setting involving only a single exposure. Future research could therefore in collaboration with marketers of electric cars, compare the relative ability of different ad types to generate actual purchase by examining advertising effectiveness of real-world ad campaigns (e.g. by examining increase in sales).

Moreover, there are other factors that may potentially moderate the effect of ad type on attitudes that I have either chosen not to examine due to the scope of this thesis, or which I may have overlooked. Future studies could therefore aim to identify and look into other potential moderating factors of the relationship between ad type and attitudes. In addition, as none of the moderating factors in this study showed significant effects upon the relationships with all of the attitude variables, these could be examined for a larger sample and other populations. In particular the trends regarding product category involvement, pro-environmental self-identity and gender is something that is worth looking more into.

In my study, the additional, non-environmental message represents a personal benefit to the consumer of driving the car. However, according to Grimmer and Woolley (2012) people

with high environmental affect demonstrate greater purchase intentions for messages emphasizing an environmental benefit. Future research could thus examine the effect of including an environmental benefit message compared to a personal benefit message, and examine the implications of this for the effect of ad type as well as for the factors moderating the relationship between ad type and attitudes, in particular pro-environmental self-identity.

Furthermore, in my study I have not included measures of willingness to pay or price perceptions of the car presented in the ad. There are already numerous studies upon the factors influence willingness to pay for environmentally friendly products in general (e.g. Laroche et al., 2001), and for instance Hidrue et al. (2011) have investigated willingness to pay for specifically for electric vehicles. However, what is even more interesting than just examining what these factors are, is to look into the role of the different ad types used in this study, in influence consumers' willingness to pay for electric cars.

Lastly, in order to provide more detailed guidelines to marketers of electric cars regarding what to include in the ads, future studies could also take into account the attributes representing drivers for choice among different car models and brands of electric cars. They could for instance make the distinction between functional attributes (e.g. driving range and battery charging time) and emotional attributes (e.g. the extent to which the car provides self-esteem and social status) to see which of these attributes should be emphasized in an advertisement.

7. CONCLUSION

In this thesis I have investigated the role of advertisement type in influencing attitudes and purchase intentions of Norwegian consumers towards electric cars. The purpose was to determine the type of advertisement (rational or emotional, and with or without an additional, non-environmental message) that is most effective in generating positive attitudes and subsequently influencing purchase intentions. In order to do so, I put forward two main research questions;

RQ1: What type of advertisement is most effective in influencing attitudes and purchase intentions towards electric cars?

RQ2: What factors influence the relationship between advertisement type and attitudes of towards electric cars?

The first research question focused on the relationship between ad type, attitudes and purchase intentions, and lead to five hypotheses. Firstly, I predicted that emotional ads in general would generate more positive attitudes than rational ads (H1), which was supported for attitude toward the ad but not the other attitudinal variables. Secondly, I predicted that emotional ads containing an additional, non-environmental message were more effective compared to emotional ads without an additional message (H2). However, I found no support for this hypothesis. Finally, I also predicted that attitudes would mediate the effect of ad type upon purchase intentions for electric cars in general (H3), and upon purchase intentions for the specific car model, the Nissan Leaf (H4). However, no significant mediation effect was found for any of these two. This means that I cannot make any conclusions regarding the effectiveness of the different ad type on purchase intentions. Hence, I can only partially answer research question 1 by concluding that emotional ads in general are more effective than rational ads, and emotional ads with an additional message are more powerful than rational ads with an additional message, when it comes to influencing attitudes toward the ad.

The second research question addressed the factors potentially moderating the relationship between ad type and the attitudinal variables, and led to three hypotheses. Firstly, I predicted product category involvement to moderate this relationship, such that rational ads would be

more effective for those highly involved with the product category, compared to those less involved with the product category (H5). This hypothesis was supported for attitude toward the product category. Second, I predicted pro-environmental self-identity (PESI) to influence the relationship such that rational ads would be more effective for those scoring high on PESI, compared to those scoring low on PESI (H6). This was supported for attitude toward the product category. Moreover, I also predicted PESI to influence the relationship such that ads (either emotional or rational) with an additional, non-environmental message would be less effective for those scoring high on PESI, compared to those scoring low on PESI (H7). No support for the latter was found however. Finally, I predicted a moderating effect of perceived inconvenience on the relationship between ad type and attitudes (H8). This was supported for attitude toward the car model and partially supported for attitude toward the product category. Hence, I can answer research question 2 by concluding that product category involvement, PESI and perceived inconvenience all influence the relationship between ad type and attitudes, although I cannot make specific conclusions for all the attitudinal variables.

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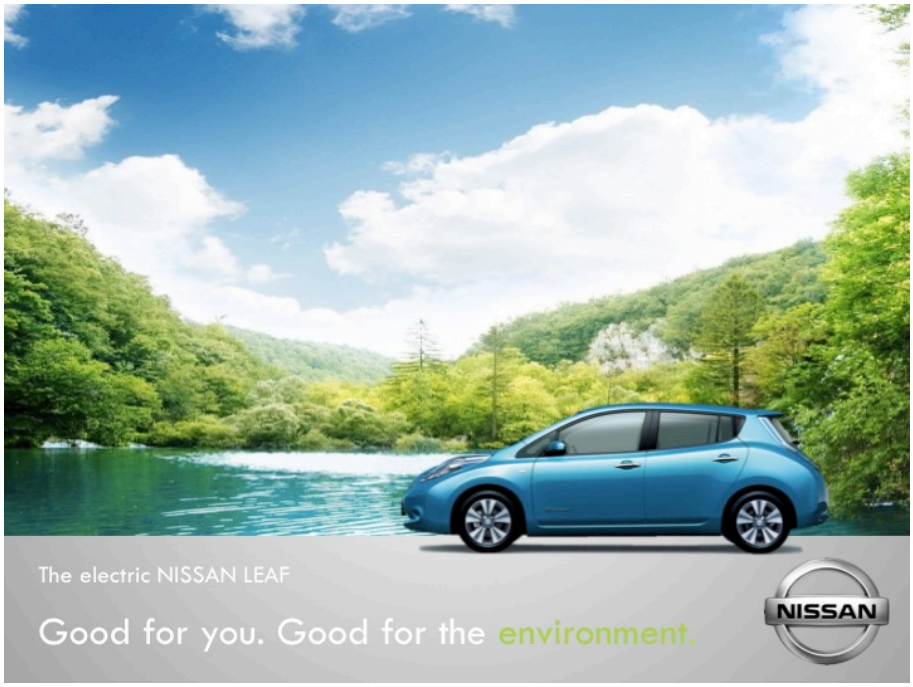
APPENDIX

1. Pre-test

1.1 The stimuli

1.1.1 Rational ad

1.1.2 Emotional ad



1.2 The Questionnaire

1. To what extent did you like this advertisement?
   (1 = Not at all, 7 = To a great extent)

1	2	3	4	5	6	7
□	□	□	□	□	□	□

2. For each set of words, please circle the number that best describes how you find the advertisement:

Bad	1	2	3	4	5	6	7	Good
Unpleasant	1	2	3	4	5	6	7	Pleasant
Unfavourable	1	2	3	4	5	6	7	Favourable
Unconvincing	1	2	3	4	5	6	7	Convincing
Incredible	1	2	3	4	5	6	7	Credible

3. To what extent do you think the advertisement presents factual arguments?
   (1 = Not at all, 7 = To a great extent)

1	2	3	4	5	6	7
□	□	□	□	□	□	□

4. For each word, please rate to what extent it describes how you find the advertisement:
   (1 = Not at all, 7 = To a great extent)

	1	2	3	4	5	6	7
Convincing	□	□	□	□	□	□	□
Credible	□	□	□	□	□	□	□
Fact-based	□	□	□	□	□	□	□
Rational	□	□	□	□	□	□	□

5. To what extent do you think the advertisement evokes positive feelings?
   (1 = Not at all, 7 = To a great extent)

1	2	3	4	5	6	7
□	□	□	□	□	□	□

6. For each word, please rate to what extent it describes how the advertisement makes you feel:
   (1 = Not at all, 7 = To a great extent)

	1	2	3	4	5	6	7
Happy	□	□	□	□	□	□	□
Joyful	□	□	□	□	□	□	□
Calm	□	□	□	□	□	□	□
Satisfied	□	□	□	□	□	□	□

7. Imagine you were to purchase a car. For each set of words, please circle the number that best describes how you find the following information:

*Save up to 15 200 kr in yearly fuel expenses**
**compared to a diesel-driven car of same size and a yearly driving distance of 15 000 km*

Irrelevant	1	2	3	4	5	6	7	Relevant
Unimportant	1	2	3	4	5	6	7	Important
I wouldn't care much	1	2	3	4	5	6	7	I would care about it

8. How likely is it that you will purchase an electric car within the next 5 years?

Certain, practically certain (99 in 100)	□
Almost sure (9 in 10)	□
Very probably (8 in 10)	□
Probably (7 in 10)	□
Good possibility (6 in 10)	□
Fairly good possibility (5 in 10)	□
Fair possibility (4 in 10)	□
Some possibility (3 in 10)	□
Slight possibility (2 in 10)	□
Very slight possibility (1 in 10)	□
No chance, almost no chance (1 in 100)	□

9. What is your attitude towards advertisements in general?
(1 = Very negative, 7 = Very positive)

1	2	3	4	5	6	7
□	□	□	□	□	□	□

10. Please indicate you gender:

Male □ Female □

1.3 Pre-test results

1.3.1 ANOVA

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Ad.Likability	Between Groups	3.380	1	3.380	3.073	.086
	Within Groups	52.800	48	1.100		
	Total	56.180	49			
Att.Ad	Between Groups	.000	1	.000	.000	1.000
	Within Groups	40.125	48	.836		
	Total	40.125	49			
Factual.Arguments	Between Groups	6.480	1	6.480	2.821	.100
	Within Groups	110.240	48	2.297		
	Total	116.720	49			
Rationality.Scale	Between Groups	6.301	1	6.301	5.778	.020
	Within Groups	52.350	48	1.091		
	Total	58.651	49			
Positive.Feelings	Between Groups	8.820	1	8.820	6.300	.015
	Within Groups	67.200	48	1.400		
	Total	76.020	49			
Emotions.Scale	Between Groups	9.680	1	9.680	8.203	.006
	Within Groups	56.640	48	1.180		
	Total	66.320	49			
Importance.Add.Mssg	Between Groups	.376	1	.376	.376	.542
	Within Groups	47.893	48	.998		
	Total	48.269	49			
Purchase.Intention	Between Groups	1.620	1	1.620	.249	.620
	Within Groups	312.000	48	6.500		
	Total	313.620	49			

Table 1.3.1: One-way ANOVA, pre-test

1.3.2 ANCOVA

Between-Subjects Factors

		N
Rational=1, Emotional=2	1.0	25
	2.0	25

Tests of Between-Subjects Effects

Dependent Variable: **Factual.Arguments**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10.213[a]	2	5.107	2.254	.116
Intercept	127.038	1	127.038	56.060	.000
Male1.Female2	3.733	1	3.733	1.648	.206
Rational1.Emotional2	7.616	1	7.616	3.361	.073
Error	106.507	47	2.266		
Total	982.000	50			
Corrected Total	116.720	49			

a. R Squared = .088 (Adjusted R Squared = .049)

Table 1.3.2.1 ANCOVA, Factual.Arguments

Tests of Between-Subjects Effects

Dependent Variable: **Rationality.Scale**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.602[a]	2	3.301	2.981	.060
Intercept	98.092	1	98.092	88.577	.000
Male1.Female2	.301	1	.301	.272	.604
Rational1.Emotional2	6.544	1	6.544	5.909	.019
Error	52.049	47	1.107		
Total	913.563	50			
Corrected Total	58.651	49			

a. R Squared = .113 (Adjusted R Squared = .075)

Table 1.3.2.2 ANCOVA, Rationality.Scale

Tests of Between-Subjects Effects

Dependent Variable: **Positive.Feelings**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.160[a]	2	4.580	3.220	.049
Intercept	123.499	1	123.499	86.815	.000
Male1.Female2	.340	1	.340	.239	.627
Rational1.Emotional2	9.111	1	9.111	6.405	.015
Error	66.860	47	1.423		
Total	1397.000	50			
Corrected Total	76.020	49			

a. R Squared = .120 (Adjusted R Squared = .083)

Table 1.3.2.3 ANCOVA, Positive.Feelings

Tests of Between-Subjects Effects

Dependent Variable: **Emotions.Scale**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.879[a]	2	4.939	4.113	.023
Intercept	104.119	1	104.119	86.702	.000
Male1.Female2	.199	1	.199	.166	.686
Rational1.Emotional2	9.211	1	9.211	7.670	.008
Error	56.441	47	1.201		
Total	995.125	50			
Corrected Total	66.320	49			

a. R Squared = .149 (Adjusted R Squared = .113)

Table 1.3.2.4 ANCOVA, Emotions.Scale

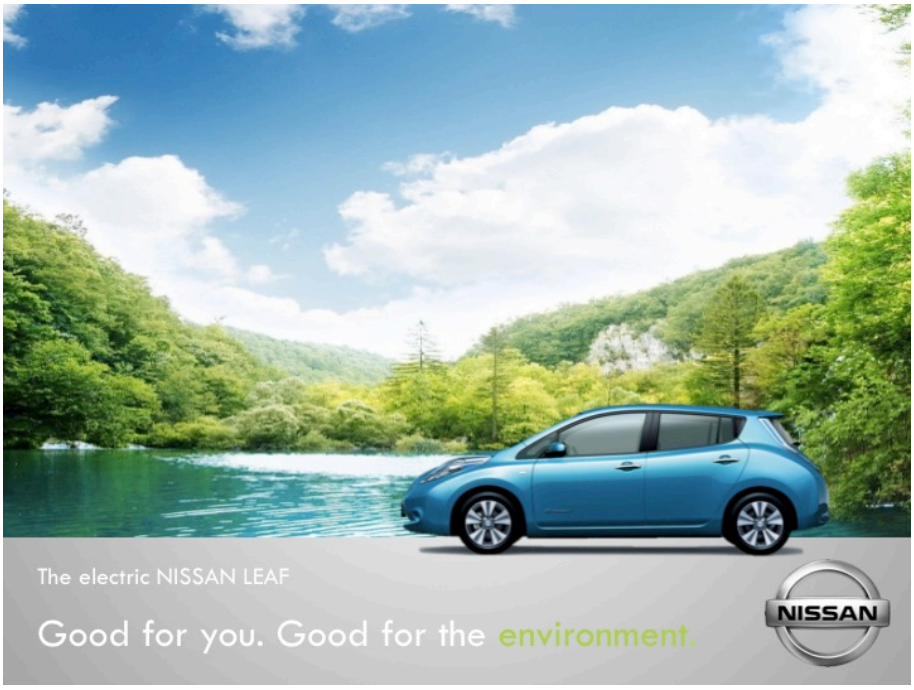
2. Main study

2.1 The stimuli

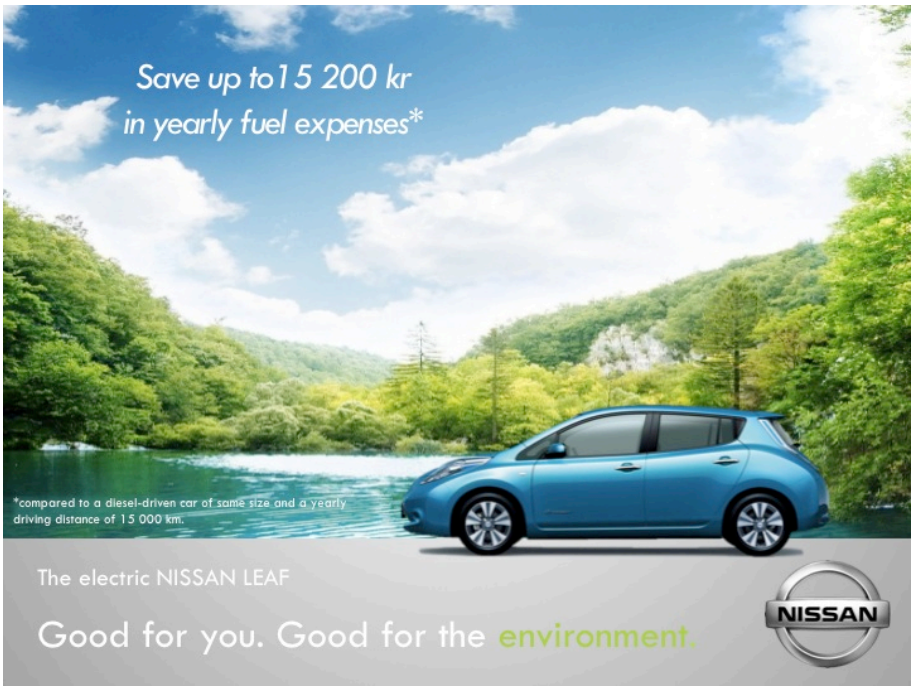
2.1.1 Rational ad

2.1.2 Rational ad with additional message

2.1.3 Emotional ad



2.1.4 Emotional ad with additional message



2.2 The survey

2.2.1 Introduction letter

Dear respondents,

In this survey you will first be presented an advertisement. Please look closely at the advertisement and answer carefully the following questions.

The survey should only take 5-6 minutes to complete. By participating in the survey you will help me with my research for my master thesis. I highly appreciate your time and participation.

Upon completing the survey you can enter your email address and have the opportunity to win one of the following prizes:

1 iPad Air
2 gift cards at G-sport worth 500,-

Thank you in advance!

2.2.2 Survey questions

How likely is it that you will purchase an **electric car** within the next 10 years?

- ◯ Definitely will not buy
- ◯ Probably will not buy
- ◯ Might buy
- ◯ Probably will buy
- ◯ Definitely will buy

How likely is it that you will purchase a **Nissan Leaf** within the next 10 years?

- ◯ Definitely will not buy
- ◯ Probably will not buy
- ◯ Might buy
- ◯ Probably will buy
- ◯ Definitely will buy

For each set of words, please select the number that best describes how you find **the advertisement**:

	1	2	3	4	5	6	7	
Bad	○	○	○	○	○	○	○	Good
Unpleasant	○	○	○	○	○	○	○	Pleasant
Unfavourable	○	○	○	○	○	○	○	Favourable
Unconvincing	○	○	○	○	○	○	○	Convincing
Not credible	○	○	○	○	○	○	○	Credible

For each set of words, please select the number that best describes how you find the **product category electric cars:**

	1	2	3	4	5	6	7	
Bad	○	○	○	○	○	○	○	Good
Unattractive	○	○	○	○	○	○	○	Attractive
Negative	○	○	○	○	○	○	○	Positive
Not likable	○	○	○	○	○	○	○	Likable
Not recommendable	○	○	○	○	○	○	○	Recommendable

For each set of words, please select the number that best describes how you find the **brand** presented in the advertisement:

	1	2	3	4	5	6	7	
Bad	○	○	○	○	○	○	○	Good
Unattractive	○	○	○	○	○	○	○	Attractive
Negative	○	○	○	○	○	○	○	Positive
Not likable	○	○	○	○	○	○	○	Likable
Not recommendable	○	○	○	○	○	○	○	Recommendable

For each set of words, please select the number that best describes how you find the **car model** presented in the advertisement:

	1	2	3	4	5	6	7	
Bad	○	○	○	○	○	○	○	Good
Unattractive	○	○	○	○	○	○	○	Attractive
Negative	○	○	○	○	○	○	○	Positive
Not likable	○	○	○	○	○	○	○	Likable
Not recommendable	○	○	○	○	○	○	○	Recommendable

To what extent do you agree that the advertisement presents factual arguments?

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
○	○	○	○	○	○	○

For each word, please rate to what extent you agree that the advertisement was...

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
... convincing	○	○	○	○	○	○	○
... credible	○	○	○	○	○	○	○
... fact-based	○	○	○	○	○	○	○
... rational	○	○	○	○	○	○	○

To what extent do you agree that the advertisement evokes positive feelings?

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
○	○	○	○	○	○	○

To what extent do you agree that the advertisement evokes positive feelings?

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
○	○	○	○	○	○	○

For each word, please rate to what extent you agree that the advertisement made you feel...

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
... happy	○	○	○	○	○	○	○
... joyful	○	○	○	○	○	○	○
... calm	○	○	○	○	○	○	○
... satisfied	○	○	○	○	○	○	○

Please rate to what extent you agree with the following statements about the **product category electric cars:**

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I would be interested in reading information about this kind of product	○	○	○	○	○	○	○
I would be interested in reading consumer reviews about this product category.	○	○	○	○	○	○	○
I have compared product characteristics among brands of this product	○	○	○	○	○	○	○
I think there are a great deal of differences among brands of this product.	○	○	○	○	○	○	○
I have a most preferred brand of this product	○	○	○	○	○	○	○

Please rate to what extent you agree with the following statements:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I think of myself as an environmentally-friendly consumer	○	○	○	○	○	○	○
I think of myself as someone who is very concerned with environmental issues	○	○	○	○	○	○	○
I would be embarrassed to be seen as having an environmentally- friendly lifestyle	○	○	○	○	○	○	○
I would not want my family or friends to think of me as someone who is concerned about environmental issues	○	○	○	○	○	○	○

Please rate to what extent you agree with the following statements:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Driving an electrical car is inconvenient	○	○	○	○	○	○	○
It takes too long to charge the batteries of an electric car	○	○	○	○	○	○	○
Driving an electric car is too much trouble	○	○	○	○	○	○	○

Do you have a car at your disposal on a daily basis?

○ Yes

○ No

Do you have any previous experience with electric cars?

No experience at all	Very little experience	Some experience	A lot of experience
○	○	○	○

Please indicate your gender:

- ○ Male
- ○ Female

Please indicate your age:

- ○ 18-20
- ○ 21-23
- ○ 24-26
- ○ 27-30
- ○ 30+

3. Descriptive statistics

3.1 Descriptive statistics (control variables)

Disposal.Car

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	52	19.0	19.0	19.0
No	221	81.0	81.0	100.0
Total	273	100.0	100.0	

Table 3.1.1 Distribution of responses, Disposal of a car

Previous.Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
No experience at all	122	44.7	44.7	44.7
Very little experience	109	39.9	39.9	84.6
Some experience	37	13.6	13.6	98.2
A lot of experience	5	1.8	1.8	100.0
Total	273	100.0	100.0	

Table 3.1.2 Distribution of responses, Previous experience

Age.Group

	Frequency	Percent	Valid Percent	Cumulative Percent
21-23	81	29.7	29.7	29.7
24-26	158	57.9	57.9	87.5
27-30	26	9.5	9.5	97.1
30+	8	2.9	2.9	100.0
Total	273	100.0	100.0	

Table 3.1.3 Distribution of responses, Age group

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	145	53.1	53.1	53.1
Female	128	46.9	46.9	100.0
Total	273	100.0	100.0	

Table 3.1.4 Distribution of responses, Gender

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Disposal.Car	273	1	2	1.81	.393	.155
Previous.Experience	273	1	4	1.73	.763	.582
Age.Group	273	2	5	2.86	.700	.491
Gender	273	1	2	1.47	.500	.250
Valid N (listwise)	273					

Table 3.1.5 Descriptive statistics (all control variables)

3.2 Descriptive statistics (constructs)

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Prod.Category.Involvement	273	2.00	7.00	4.5736	1.06669	1.138
PESI	273	1.00	7.00	5.0962	.96237	.926
Perceived.Inconv	273	1.00	7.00	3.9634	1.18348	1.401
Valid N (listwise)	273					

Table 3.2 Descriptive statistics (constructs)

3.3 Descriptive statistics (attitudes)

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Att.Ad	273	1.80	7.00	4.6601	.85452	.730
Att.Prod.Category	273	1.00	7.00	5.4505	1.00011	1.000
Att.Brand	273	1.00	7.00	4.4571	.97330	.947
Att.Carmodel	273	1.00	7.00	4.5289	1.09468	1.198
Valid N (listwise)	273					

Table 3.3 Descriptive statistics (attitudes)

3.4 Descriptive statistics (purchase intentions)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
PI.General	273	1	5	3.21	.831	.690
PI.NissanLeaf	273	1	5	2.39	.709	.503
Valid N (listwise)	273					

Table 3.4 Descriptive statistics (purchase intentions)

3.5 Descriptive statistics per treatment condition (ad condition)

Ad.Condition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	61	22.3	22.3	22.3
	2.00	67	24.5	24.5	46.9
	3.00	75	27.5	27.5	74.4
	4.00	70	25.6	25.6	100.0
	Total	273	100.0	100.0	

Table 3.5.1 Distribution per treatment condition

Ad.Condition		PI.General	PI.NissanLeaf	Att.Ad	Att.Prod.Category	Att.Brand	Att.Carmodel
1.00	**Mean**	**3.23**	**2.41**	**4.5049**	**5.5574**	**4.3869**	**4.3770**
	Std. Deviation	.902	.739	.84979	.93246	1.03786	1.07771
	Minimum	1	1	2.20	3.00	1.00	1.00
	Maximum	5	4	5.80	7.00	6.20	6.60
2.00	**Mean**	**3.04**	**2.39**	**4.5134**	**5.3134**	**4.4149**	**4.4955**
	Std. Deviation	.747	.717	.98487	1.03703	.98984	.99657
	Minimum	1	1	1.80	1.00	2.00	2.00
	Maximum	5	5	6.80	7.00	7.00	7.00
3.00	**Mean**	**3.32**	**2.37**	**4.7493**	**5.5360**	**4.4053**	**4.5067**
	Std. Deviation	.825	.693	.83769	1.04657	1.08502	1.24784
	Minimum	2	1	2.80	3.00	1.40	1.00
	Maximum	5	4	7.00	7.00	7.00	7.00
4.00	**Mean**	**3.24**	**2.39**	**4.8400**	**5.3971**	**4.6143**	**4.7171**
	Std. Deviation	.842	.708	.69749	.97177	.75090	1.01781
	Minimum	1	1	2.60	2.80	2.80	1.00
	Maximum	5	4	7.00	7.00	6.00	7.00
Total	Mean	3.21	2.39	4.6601	5.4505	4.4571	4.5289
	Std. Deviation	.831	.709	.85452	1.00011	.97330	1.09468
	Minimum	1	1	1.80	1.00	1.00	1.00
	Maximum	5	5	7.00	7.00	7.00	7.00

Table 3.5.2 Descriptive statistics per treatment condition

3.6 Descriptive statistics (all variables)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PI.General	273	1	5	3.21	.831	.690	-.066	.147	.198	.294
PI.NissanLeaf	273	1	5	2.39	.709	.503	-.284	.147	-.085	.294
Ad likability	273	1	7	4.84	.905	.820	-.335	.147	1.040	.294
Att.Ad_Bad-Good	273	2	7	4.73	.924	.854	-.215	.147	.302	.294
Att.Ad_Unpleasant-Pleasant	273	1	7	5.08	1.164	1.354	-.722	.147	1.049	.294
Att.Ad_Unfavourable-Favourable	273	1	7	4.57	1.052	1.106	-.372	.147	.881	.294
Att.Ad_Unconvincing-Convincing	273	1	7	4.26	1.234	1.522	-.345	.147	.086	.294
Att.Ad_Not credible-Credible	273	1	7	4.67	1.148	1.319	-.700	.147	1.076	.294
Att.Prod.Cat_Bad-Good	273	1	7	5.50	1.151	1.324	-.754	.147	.516	.294
Att.Prod.Cat_Unattractive-Attractive	273	1	7	5.20	1.292	1.669	-.618	.147	-.075	.294
Att.Prod.Cat_Negative-Positive	273	1	7	5.78	1.109	1.231	-.956	.147	1.046	.294
Att.Prod.Cat_Not likable-Likable	273	1	7	5.53	1.111	1.235	-.791	.147	.932	.294
Att.Prod.Cat_Not recommendable-Recommendable	273	1	7	5.24	1.225	1.500	-.435	.147	-.233	.294
Att.Brand_Bad-Good	273	1	7	4.56	1.060	1.123	-.197	.147	.320	.294
Att.Brand_Unattractive-Attractive	273	1	7	4.23	1.256	1.577	-.283	.147	.048	.294
Att.Brand_Negative-Positive	273	1	7	4.60	1.035	1.071	-.252	.147	.488	.294
Att.Brand_Not likable-Likable	273	1	7	4.51	1.082	1.170	-.446	.147	.728	.294
Att.Brand_Not recommendable-Recommendable	273	1	7	4.38	1.050	1.103	-.190	.147	1.111	.294
Att.Car.Model_Bad-Good	273	1	7	4.60	1.203	1.447	-.431	.147	.642	.294
Att.Car.Model_Unattractive-Attractive	273	1	7	4.29	1.348	1.817	-.285	.147	-.240	.294

Att.Car.Model_Negative-Positive	273	1	7	4.70	1.159	1.343	-.408	.147	.908	.294
Att.Car.Model_Not likable-Likable	273	1	7	4.56	1.268	1.607	-.467	.147	.478	.294
Att.Car.Model_Not recommendable-Recommendable	273	1	7	4.49	1.115	1.243	-.097	.147	.920	.294
Factual.Arguments	273	1	7	4.61	1.164	1.356	-.526	.147	.077	.294
Rationality_Convincing	273	1	7	4.40	1.230	1.514	-.425	.147	-.264	.294
Rationality_Credible	273	2	7	4.63	1.094	1.197	-.192	.147	-.636	.294
Rationality_Fact-based	273	1	7	4.55	1.181	1.395	-.627	.147	.600	.294
Rationality_Rational	273	1	7	4.59	1.109	1.229	-.203	.147	-.101	.294
Positive.Feelings	273	1	7	5.05	1.115	1.243	-.798	.147	.766	.294
Emotionality_Happy	273	1	7	4.24	1.274	1.623	-.595	.147	.336	.294
Emotionality_Joyful	273	1	7	4.12	1.230	1.514	-.275	.147	.631	.294
Emotionality_Calm	273	1	7	4.68	1.215	1.477	-.624	.147	.736	.294
Emotionality_ Satisfied	273	1	7	4.30	1.174	1.379	-.650	.147	.732	.294
Att.Ads.General_1	273	1	7	4.23	1.192	1.421	-.166	.147	-.779	.294
Att.Ads.General_2	273	1	7	4.03	1.338	1.790	-.335	.147	-.594	.294
Prod.Cat.Inv_1	273	1	7	4.87	1.384	1.916	-.792	.147	.005	.294
Prod.Cat.Inv_2	273	1	7	5.15	1.422	2.023	-.856	.147	.119	.294
Prod.Cat.Inv_3	273	1	7	3.60	1.810	3.277	.171	.147	-1.145	.294
Prod.Cat.Inv_4	273	1	7	5.05	1.285	1.652	-.347	.147	-.152	.294
Prod.Cat.Inv_5	273	1	7	4.20	1.719	2.956	-.066	.147	-.872	.294
PESI_1	273	1	7	4.49	1.345	1.810	-.502	.147	-.164	.294
PESI_2	273	1	7	4.19	1.467	2.152	-.137	.147	-.603	.294
PESI_3 (reverse scoring)	273	1	7	5.85	1.319	1.741	-1.436	.147	1.828	.294
PESI_4 (reverse scoring)	273	1	7	5.86	1.404	1.971	-1.331	.147	1.093	.294
Perceived.Inc_1	273	1	7	3.93	1.430	2.046	-.326	.147	-.828	.294
Perceived.Inc_2	273	1	7	4.25	1.294	1.675	-.203	.147	.211	.294
Perceived.Inc_3	273	1	7	3.71	1.430	2.045	-.096	.147	-.460	.294
Disposal.Car	273	1	2	1.81	.393	.155	-1.585	.147	.517	.294
Previous.Experience	273	1	4	1.73	.763	.582	.760	.147	-.086	.294
Age.Group	273	2	5	2.86	.700	.491	.722	.147	.978	.294
Gender	273	1	2	1.47	.500	.250	.125	.147	-1.999	.294

Table 3.6 Descriptive statistics (all variables)

4. Manipulation checks

4.1 Rational ads vs. emotional ads: ANOVA (contrasting averages of the two rational ads against the two emotional ads)

Tests of Between-Subjects Effects

Dependent Variable: Factual.Arguments

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.867[a]	3	3.289	2.465	.063
Intercept	5778.804	1	5778.804	4330.369	.000
Ad.Condition	9.867	3	3.289	2.465	.063
Error	358.976	269	1.334		
Total	6175.000	273			
Corrected Total	368.842	272			

a. R Squared = .027 (Adjusted R Squared = .016)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Factual.Arguments
L1	Contrast Estimate		-.003
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.003
	Std. Error		.140
	Sig.		.983
	95% Confidence Interval for Difference	Lower Bound	-.279
		Upper Bound	.273

Test Results

Dependent Variable: Factual.Arguments

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	.001	1	.001	.000	.983
Error	358.976	269	1.334		

Tests of Between-Subjects Effects

Dependent Variable: Rationality

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.326[a]	3	2.775	3.169	.025
Intercept	5601.080	1	5601.080	6394.967	.000
Ad.Condition	8.326	3	2.775	3.169	.025
Error	235.606	269	.876		
Total	5878.438	273			
Corrected Total	243.932	272			

a. R Squared = .034 (Adjusted R Squared = .023)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Rationality
	Contrast Estimate		-.127
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.127
L1	Std. Error		.114
	Sig.		.263
	95% Confidence Interval for Difference	Lower Bound	-.351
		Upper Bound	.096

Test Results

Dependent Variable: Rationality

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	1.101	1	1.101	1.257	.263
Error	235.606	269	.876		

Tests of Between-Subjects Effects

Dependent Variable: Positive.Feelings

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	28.619[a]	3	9.540	8.290	.000
Intercept	6875.921	1	6875.921	5975.061	.000
Ad.Condition	28.619	3	9.540	8.290	.000
Error	309.557	269	1.151		
Total	7314.000	273			
Corrected Total	338.176	272			

a. R Squared = .085 (Adjusted R Squared = .074)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Positive.Feelings
	Contrast Estimate		-.599
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.599
L1	Std. Error		.130
	Sig.		.000
	95% Confidence Interval for Difference	Lower Bound	-.856
		Upper Bound	-.343

Test Results

Dependent Variable: Positive.Feelings

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	24.378	1	24.378	21.184	.000
Error	309.557	269	1.151		

Tests of Between-Subjects Effects

Dependent Variable: Emotionality

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	28.594[a]	3	9.531	9.183	.000
Intercept	5052.198	1	5052.198	4867.308	.000
Ad.Condition	28.594	3	9.531	9.183	.000
Error	279.218	269	1.038		
Total	5436.313	273			
Corrected Total	307.812	272			

a. R Squared = .093 (Adjusted R Squared = .083)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Emotionality
L1	Contrast Estimate		-.628
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.628
	Std. Error		.124
	Sig.		.000
	95% Confidence Interval for Difference	Lower Bound	-.871
		Upper Bound	-.385

Test Results

Dependent Variable: Emotionality

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	26.767	1	26.767	25.787	.000
Error	279.218	269	1.038		

4.2 Rational vs. emotional ads: ANOVA (contrasting ads with additional messages only)

Tests of Between-Subjects Effects

Dependent Variable: Factual.Arguments

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.867[a]	3	3.289	2.465	.063
Intercept	5778.804	1	5778.804	4330.369	.000
Ad.Condition	9.867	3	3.289	2.465	.063
Error	358.976	269	1.334		
Total	6175.000	273			
Corrected Total	368.842	272			

a. R Squared = .027 (Adjusted R Squared = .016)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Factual.Arguments
L1	Contrast Estimate		-.141
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.141
	Std. Error		.197
	Sig.		.477
	95% Confidence Interval for Difference	Lower Bound	-.529
		Upper Bound	.248

Test Results

Dependent Variable: Factual.Arguments

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	.678	1	.678	.508	.477
Error	358.976	269	1.334		

Tests of Between-Subjects Effects

Dependent Variable: Rationality

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.326[a]	3	2.775	3.169	.025
Intercept	5601.080	1	5601.080	6394.967	.000
Ad.Condition	8.326	3	2.775	3.169	.025
Error	235.606	269	.876		
Total	5878.438	273			
Corrected Total	243.932	272			

a. R Squared = .034 (Adjusted R Squared = .023)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Rationality
L1	Contrast Estimate		-.310
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.310
	Std. Error		.160
	Sig.		.054
	95% Confidence Interval for Difference	Lower Bound	-.625
		Upper Bound	.005

Test Results

Dependent Variable: Rationality

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	3.288	1	3.288	3.754	.054
Error	235.606	269	.876		

5. Reliability Analysis

Reliability Statistics

Cronbach's Alpha	N of Items
.829	5

Table 5.1 Cronbach's Alpha, Att.Ad

Reliability Statistics

Cronbach's Alpha	N of Items
.902	5

Table 5.2 Cronbach's Alpha, Att.Prod.Category

Reliability Statistics

Cronbach's Alpha	N of Items
.931	5

Table 5.3 Cronbach's Alpha, Att.Brand

Reliability Statistics

Cronbach's Alpha	N of Items
.939	5

Table 5.4 Cronbach's Alpha, Att.CarModel

Reliability Statistics

Cronbach's Alpha	N of Items
.730	5

Table 5.5 Cronbach's Alpha, Prod.Cat.Involvement

Reliability Statistics

Cronbach's Alpha	N of Items
.643	4

Table 5.6 Cronbach's Alpha, PESI

Reliability Statistics

Cronbach's Alpha	N of Items
.814	3

Table 5.7 Cronbach's Alpha, Perceived.Inc

6. Test of assumptions

6.1 Test of assumptions (ANOVA)

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Att.Ad	2.443	3	269	.064
Att.Prod.Category	.464	3	269	.708
Att.Brand	1.825	3	269	.143
Att.Carmodel	.888	3	269	.448

Table 6.1 Test of Homogeneity of Variances (Levene's test)

6.2 Test of assumptions (multiple linear regressions)

6.2.1 Normal distribution of errors

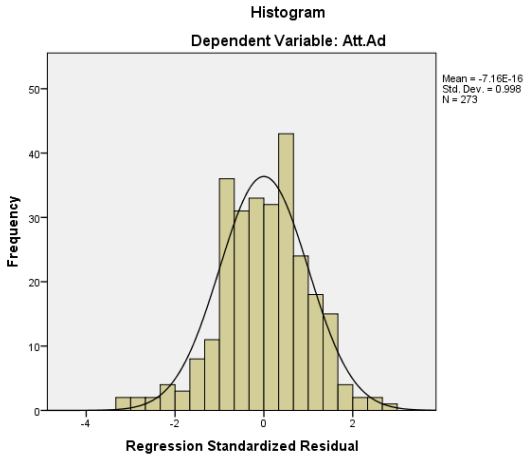


Table 6.2.1: Histogram Att.Ad

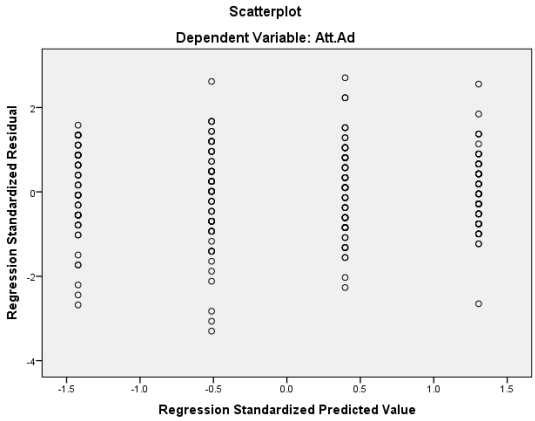


Table 6.2.2: Scatterplot Att.Ad

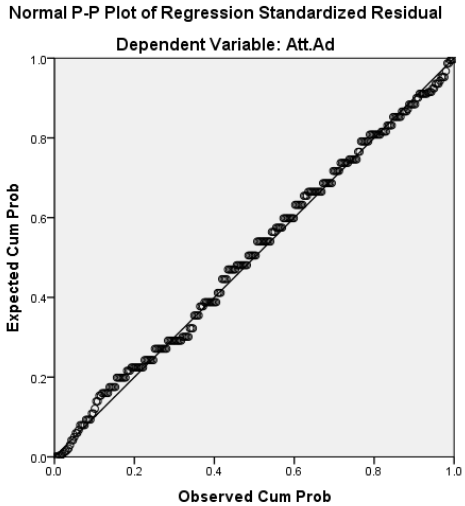


Table 6.2.3: Normal P-P Plot Att.Ad

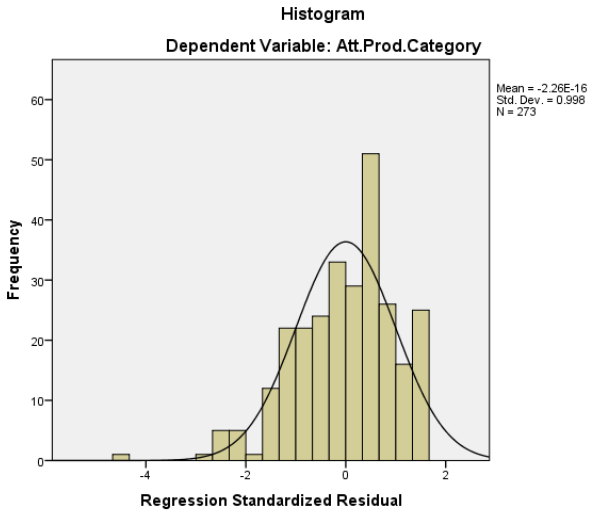


Table 6.2.7: Histogram Att.Prod.Category

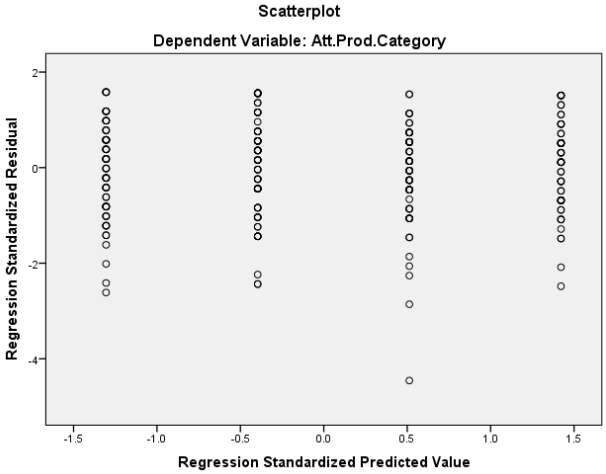


Table 6.2.8: Scatteplot Att.Prod.Category

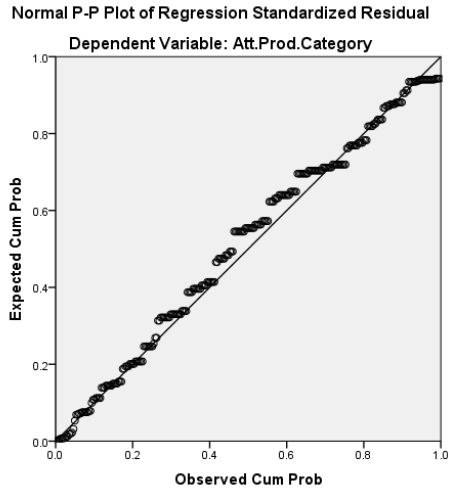


Table 6.2.9 Normal P-P Plot Att.Product.Category

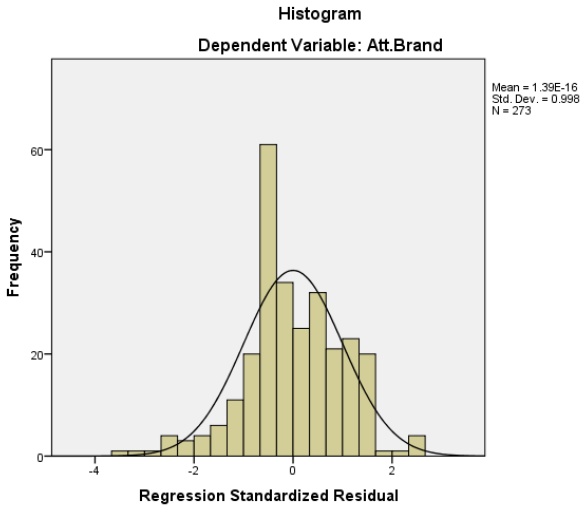


Table 6.2.10: Histogram Att.Brand

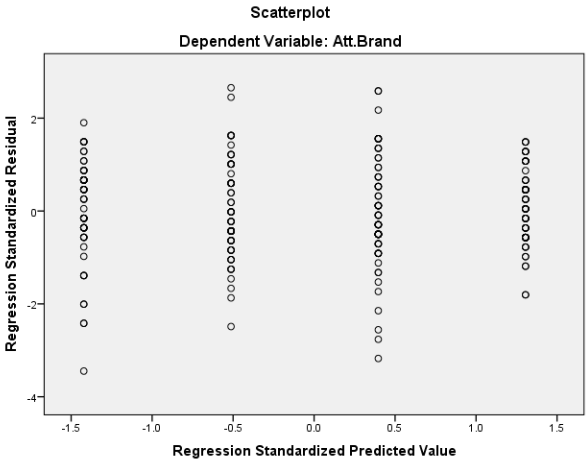


Table 6.2.11: Scatteplot Att.Brand

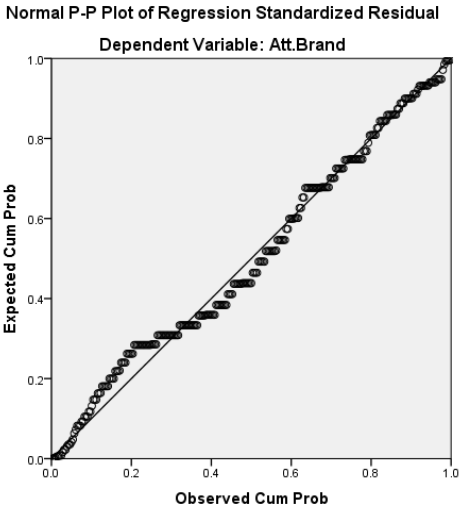


Table 6.2.12: Normal P-P Plot Att.Brand

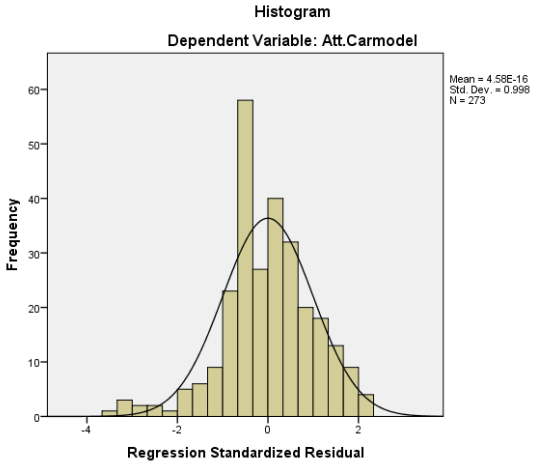


Table 6.2.13: Histogram Att.Carmodel

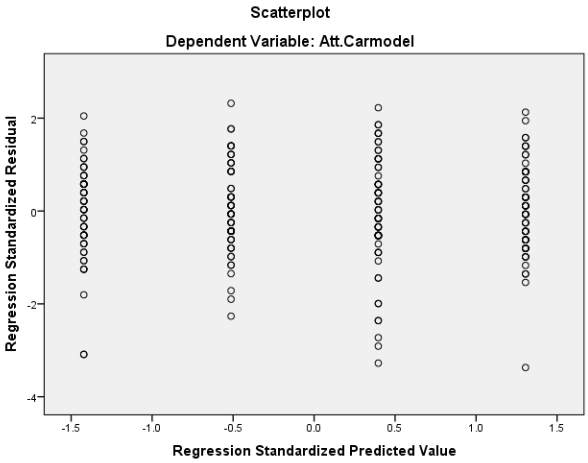


Table 6.2.14: Scatterplot Att.Carmodel

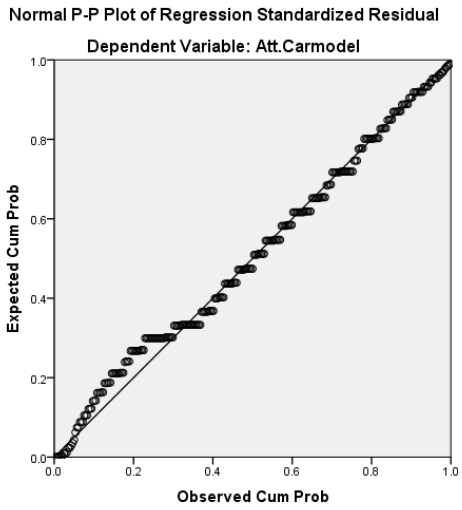


Table 6.2.15: Normal P-P Plot Att.Carmodel

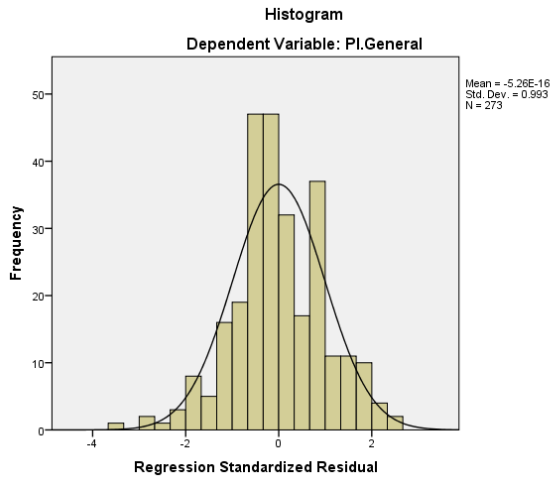


Table 6.2.16: Histogram PI.General

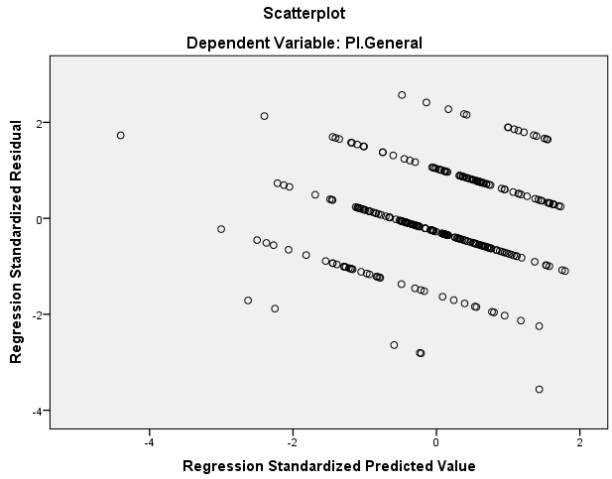


Table 6.2.17: Scatteplot PI.General

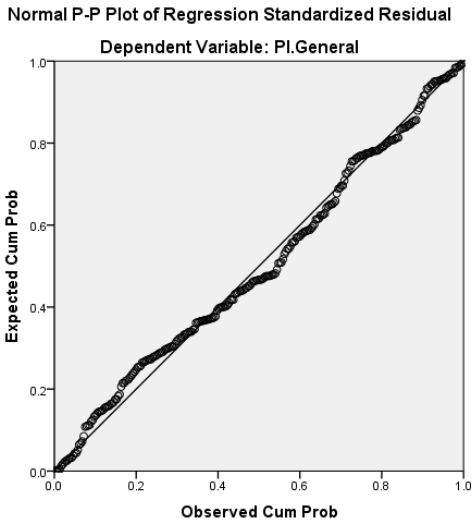


Table 6.2.18: Normal P-P Plot PI.General

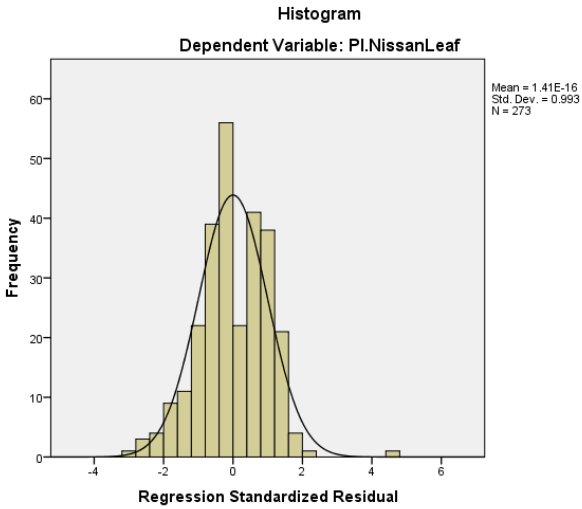


Table 6.2.19: Histogram PI.NissanLeaf

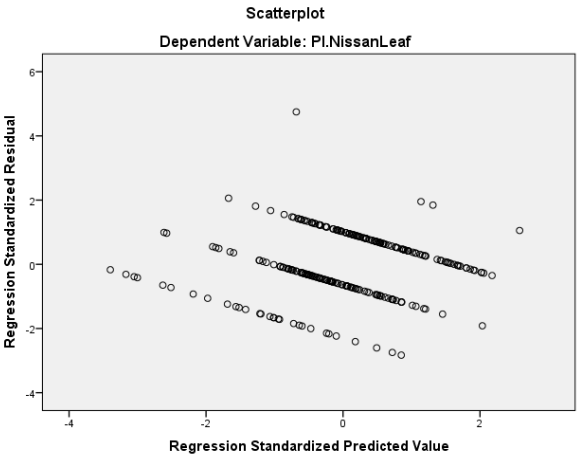


Table 6.2.20: Scatteplot PI.NissanLeaf

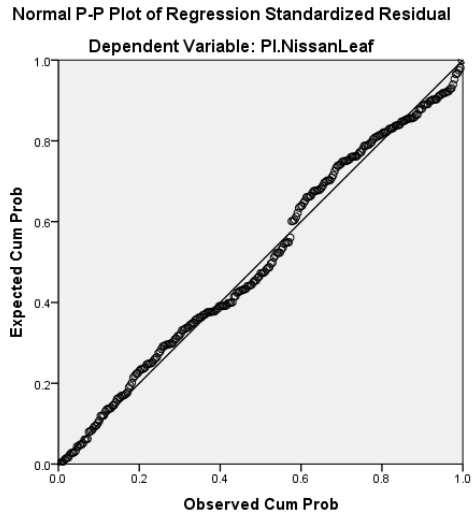


Table 6.2.21: Normal P-P Plot PI.NissanLeaf

7. Test of hypotheses

7.1 Test of Hypotheses H1-H3: ANOVA (Simple contrasting)

7.1.1 Attitude toward the ad

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.773[a]	3	1.924	2.684	.047
Intercept	5874.762	1	5874.762	8194.852	.000
Ad.Condition	5.773	3	1.924	2.684	.047
Error	192.842	269	.717		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = ,029 (Adjusted R Squared = ,018)

Custom Hypothesis Tests: Att.Ad (first)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Ad
Level 2 vs. Level 1	Contrast Estimate		.009
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.009
	Std. Error		.150
	Sig.		.955
	95% Confidence Interval for Difference	Lower Bound	-.286
		Upper Bound	.304
Level 3 vs. Level 1	Contrast Estimate		.244
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.244
	Std. Error		.146
	Sig.		.095
	95% Confidence Interval for Difference	Lower Bound	-.043
		Upper Bound	.532
Level 4 vs. Level 1	Contrast Estimate		.335
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.335
	Std. Error		.148
	Sig.		.025
	95% Confidence Interval for Difference	Lower Bound	.043
		Upper Bound	.627

a. Reference category = 1

Custom Hypothesis Tests: Att. Ad (last)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Ad
Level 1 vs. Level 4	Contrast Estimate		-.335
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.335
	Std. Error		.148
	Sig.		.025
	95% Confidence Interval for Difference	Lower Bound	-.627
		Upper Bound	-.043
Level 2 vs. Level 4	Contrast Estimate		-.327
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.327
	Std. Error		.145
	Sig.		.025
	95% Confidence Interval for Difference	Lower Bound	-.611
		Upper Bound	-.042
Level 3 vs. Level 4	Contrast Estimate		-.091
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.091
	Std. Error		.141
	Sig.		.520
	95% Confidence Interval for Difference	Lower Bound	-.368
		Upper Bound	.186

a. Reference category = 4

Test Results

Dependent Variable: Att.Ad

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	5.773	3	1.924	2.684	.047
Error	192.842	269	.717		

7.1.2 Attitude toward product category

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.703[a]	3	.901	.900	.442
Intercept	8066.332	1	8066.332	8055.571	.000
Ad.Condition	2.703	3	.901	.900	.442
Error	269.359	269	1.001		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = ,010 (Adjusted R Squared = -,001)

Custom Hypothesis Tests: Att. Prod.Category (first)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Prod.Category
Level 2 vs. Level 1	Contrast Estimate		-.244
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.244
	Std. Error		.177
	Sig.		.169
	95% Confidence Interval for Difference	Lower Bound	-.593
		Upper Bound	.105
Level 3 vs. Level 1	Contrast Estimate		-.021
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.021
	Std. Error		.173
	Sig.		.901
	95% Confidence Interval for Difference	Lower Bound	-.361
		Upper Bound	.318
Level 4 vs. Level 1	Contrast Estimate		-.160
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.160
	Std. Error		.175
	Sig.		.361
	95% Confidence Interval for Difference	Lower Bound	-.505
		Upper Bound	.185

a. Reference category = 1

Custom Hypothesis Tests: Att. Prod.Category (last)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Prod.Category
Level 1 vs. Level 4	Contrast Estimate		.160
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.160
	Std. Error		.175
	Sig.		.361
	95% Confidence Interval for Difference	Lower Bound	-.185
		Upper Bound	.505
Level 2 vs. Level 4	Contrast Estimate		-.084
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.084
	Std. Error		.171
	Sig.		.625
	95% Confidence Interval for Difference	Lower Bound	-.420
		Upper Bound	.253
Level 3 vs. Level 4	Contrast Estimate		.139
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.139
	Std. Error		.166
	Sig.		.404
	95% Confidence Interval for Difference	Lower Bound	-.189
		Upper Bound	.466

a. Reference category = 4

Test Results

Dependent Variable: Att.Prod.Category

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	2.703	3	.901	.900	.442
Error	269.359	269	1.001		

7.1.3 Attitude toward the brand

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.350[a]	3	.783	.825	.481
Intercept	5388.783	1	5388.783	5677.554	.000
Ad.Condition	2.350	3	.783	.825	.481
Error	255.318	269	.949		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = ,009 (Adjusted R Squared = -,002)

Custom Hypothesis Tests: Att.Brand (first)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Brand
Level 2 vs. Level 1	Contrast Estimate		.028
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.028
	Std. Error		.172
	Sig.		.871
	95% Confidence Interval for Difference	Lower Bound	-.311
		Upper Bound	.367
Level 3 vs. Level 1	Contrast Estimate		.018
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.018
	Std. Error		.168
	Sig.		.913
	95% Confidence Interval for Difference	Lower Bound	-.312
		Upper Bound	.349
Level 4 vs. Level 1	Contrast Estimate		.227
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.227
	Std. Error		.171
	Sig.		.184
	95% Confidence Interval for Difference	Lower Bound	-.109
		Upper Bound	.563

a. Reference category = 1

Custom Hypothesis Tests: Att Brand (last)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Brand
Level 1 vs. Level 4	Contrast Estimate		-.227
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.227
	Std. Error		.171
	Sig.		.184
	95% Confidence Interval for Difference	Lower Bound	-.563
		Upper Bound	.109
Level 2 vs. Level 4	Contrast Estimate		-.199
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.199
	Std. Error		.167
	Sig.		.232
	95% Confidence Interval for Difference	Lower Bound	-.527
		Upper Bound	.128
Level 3 vs. Level 4	Contrast Estimate		-.209
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.209
	Std. Error		.162
	Sig.		.198
	95% Confidence Interval for Difference	Lower Bound	-.528
		Upper Bound	.110

a. Reference category = 4

Test Results

Dependent Variable: Att.Brand

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	2.350	3	.783	.825	.481
Error	255.318	269	.949		

7.1.4 Attitude toward the car model

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.999[a]	3	1.333	1.114	.344
Intercept	5556.343	1	5556.343	4642.617	.000
Ad.Condition	3.999	3	1.333	1.114	.344
Error	321.943	269	1.197		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = ,012 (Adjusted R Squared = ,001)

Custom Hypothesis Tests: Att.Car model (first)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Carmodel
Level 2 vs. Level 1	Contrast Estimate		.118
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.118
	Std. Error		.194
	Sig.		.541
	95% Confidence Interval for Difference	Lower Bound	-.263
		Upper Bound	.500
Level 3 vs. Level 1	Contrast Estimate		.130
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.130
	Std. Error		.189
	Sig.		.493
	95% Confidence Interval for Difference	Lower Bound	-.242
		Upper Bound	.501
Level 4 vs. Level 1	Contrast Estimate		.340
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		.340
	Std. Error		.192
	Sig.		.077
	95% Confidence Interval for Difference	Lower Bound	-.037
		Upper Bound	.717

a. Reference category = 1

Custom Hypothesis Tests: Att.Carmodel (last)

Contrast Results (K Matrix)

Ad.Condition Simple Contrast[a]			Dependent Variable
			Att.Carmodel
Level 1 vs. Level 4	Contrast Estimate		-.340
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.340
	Std. Error		.192
	Sig.		.077
	95% Confidence Interval for Difference	Lower Bound	-.717
		Upper Bound	.037
Level 2 vs. Level 4	Contrast Estimate		-.222
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.222
	Std. Error		.187
	Sig.		.237
	95% Confidence Interval for Difference	Lower Bound	-.590
		Upper Bound	.147
Level 3 vs. Level 4	Contrast Estimate		-.210
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.210
	Std. Error		.182
	Sig.		.248
	95% Confidence Interval for Difference	Lower Bound	-.568
		Upper Bound	.147

a. Reference category = 4

Test Results

Dependent Variable: Att.Carmodel

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	3.999	3	1.333	1.114	.344
Error	321.943	269	1.197		

7.2 Test of Hypotheses H1-H3: ANOVA (Special contrasting)

7.2.1 Attitude toward the ad

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.773[a]	3	1.924	2.684	.047
Intercept	5874.762	1	5874.762	8194.852	.000
Ad.Condition	5.773	3	1.924	2.684	.047
Error	192.842	269	.717		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = .029 (Adjusted R Squared = .018)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Att.Ad
L1	Contrast Estimate		-.285
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.285
	Std. Error		.103
	Sig.		.006
	95% Confidence Interval for Difference	Lower Bound	-.488
		Upper Bound	-.083

Test Results

Dependent Variable: Att.Ad

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	5.532	1	5.532	7.716	.006
Error	192.842	269	.717		

7.2.2 Attitude toward the product category

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.703[a]	3	.901	.900	.442
Intercept	8066.332	1	8066.332	8055.571	.000
Ad.Condition	2.703	3	.901	.900	.442
Error	269.359	269	1.001		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = .010 (Adjusted R Squared = -.001)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Att.Prod.Category
	Contrast Estimate		-.031
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.031
L1	Std. Error		.121
	Sig.		.798
	95% Confidence Interval for Difference	Lower Bound	-.270
		Upper Bound	.208

Test Results

Dependent Variable: Att.Prod.Category

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	.066	1	.066	.066	.798
Error	269.359	269	1.001		

7.2.3 Attitude toward the brand

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.350[a]	3	.783	.825	.481
Intercept	5388.783	1	5388.783	5677.554	.000
Ad.Condition	2.350	3	.783	.825	.481
Error	255.318	269	.949		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = .009 (Adjusted R Squared = -.002)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Att.Brand
	Contrast Estimate		-.109
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.109
L1	Std. Error		.118
	Sig.		.358
	95% Confidence Interval for Difference	Lower Bound	-.342
		Upper Bound	.124

Test Results

Dependent Variable: Att.Brand

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	.805	1	.805	.848	.358
Error	255.318	269	.949		

7.2.4 Attitude toward the car model

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.999[a]	3	1.333	1.114	.344
Intercept	5556.343	1	5556.343	4642.617	.000
Ad.Condition	3.999	3	1.333	1.114	.344
Error	321.943	269	1.197		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = .012 (Adjusted R Squared = .001)

Contrast Results (K Matrix)

Ad.Condition Special Contrast			Dependent Variable
			Att.Carmodel
L1	Contrast Estimate		-.176
	Hypothesized Value		0
	Difference (Estimate - Hypothesized)		-.176
	Std. Error		.133
	Sig.		.187
	95% Confidence Interval for Difference	Lower Bound	-.437
		Upper Bound	.086

Test Results

Dependent Variable: Att.Carmodel

Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	2.093	1	2.093	1.749	.187
Error	321.943	269	1.197		

7.3 Hypothesis H4-H5: Linear regressions

7.3.1 Attitude toward the ad

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.162[a]	.026	.023	.84482	2.093

a. Predictors: (Constant), Ad.Condition

b. Dependent Variable: Att.Ad

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.195	1	5.195	7.278	.007[b]
	Residual	193.420	271	.714		
	Total	198.615	272			

a. Dependent Variable: Att.Ad
b. Predictors: (Constant), Ad.Condition

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.338	.130		33.397	.000		
	Ad.Condition	.126	.047	.162	2.698	.007	1.000	1.000

a. Dependent Variable: Att.Ad

7.3.2 Attitude toward the product category

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.025[a]	.001	-.003	1.00164	2.091

a. Predictors: (Constant), Ad.Condition
b. Dependent Variable: Att.Prod.Category

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.175	1	.175	.174	.677[b]
	Residual	271.888	271	1.003		
	Total	272.062	272			

a. Dependent Variable: Att.Prod.Category
b. Predictors: (Constant), Ad.Condition

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5.510	.154		35.777	.000		
	Ad.Condition	-.023	.055	-.025	-.417	.677	1.000	1.000

a. Dependent Variable: Att.Prod.Category

7.3.3 Attitude toward the brand

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.077[a]	.006	.002	.97220	2.021

a. Predictors: (Constant), Ad.Condition
b. Dependent Variable: Att.Brand

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.525	1	1.525	1.613	.205[b]
	Residual	256.144	271	.945		
	Total	257.669	272			

a. Dependent Variable: Att.Brand
b. Predictors: (Constant), Ad.Condition

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.283	.149		28.651	.000		
	Ad.Condition	.068	.054	.077	1.270	.205	1.000	1.000

a. Dependent Variable: Att.Brand

7.3.4 Attitude toward the car model

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.104[a]	.011	.007	1.09079	1.972

a. Predictors: (Constant), Ad.Condition
b. Dependent Variable: Att.Carmodel

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.501	1	3.501	2.942	.087[b]
	Residual	322.441	271	1.190		
	Total	325.941	272			

a. Dependent Variable: Att.Carmodel
b. Predictors: (Constant), Ad.Condition

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.264	.168		25.428	.000		
	Ad.Condition	.103	.060	.104	1.715	.087	1.000	1.000

a. Dependent Variable: Att.Carmodel

7.3.5 Purchase intention electric cars in general

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.418[a]	.174	.162	.760	2.042

a. Predictors: (Constant), Att.Carmodel, Att.Prod.Category, Att.Ad, Att.Brand

b. Dependent Variable: PI.General

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.744	4	8.186	14.160	.000[b]
	Residual	154.934	268	.578		
	Total	187.678	272			

a. Dependent Variable: PI.General

b. Predictors: (Constant), Att.Carmodel, Att.Prod.Category, Att.Ad, Att.Brand

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.323	.325		4.067	.000		
	Att.Ad	.010	.062	.011	.168	.867	.757	1.321
	Att.Prod.Category	.347	.049	.417	7.010	.000	.869	1.151
	Att.Brand	.026	.068	.031	.388	.699	.487	2.052
	Att.Carmodel	-.037	.060	-.048	-.610	.543	.493	2.029

a. Dependent Variable: PI.General

7.3.6 Purchase intention Nissan Leaf

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.533[a]	.285	.274	.604	1.993

a. Predictors: (Constant), Att.Carmodel, Att.Prod.Category, Att.Ad, Att.Brand
b. Dependent Variable: PI.NissanLeaf

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.934	4	9.734	26.643	.000[b]
	Residual	97.908	268	.365		
	Total	136.842	272			

a. Dependent Variable: PI.NissanLeaf
b. Predictors: (Constant), Att.Carmodel, Att.Prod.Category, Att.Ad, Att.Brand

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.573	.259		2.215	.028		
	Att.Ad	.006	.049	.008	.129	.897	.757	1.321
	Att.Prod.Category	.019	.039	.026	.475	.635	.869	1.151
	Att.Brand	.115	.054	.158	2.132	.034	.487	2.052
	Att.Carmodel	.259	.048	.399	5.423	.000	.493	2.029

a. Dependent Variable: PI.NissanLeaf

7.4 Hypothesis H5-H8: ANOVAs

7.4.1 Product category involvement

Between-Subjects Factors

		N
Ad.Condition	1.00	61
	2.00	67
	3.00	75
	4.00	70
Prod.Cat.Inv_1=Low,2=High	1.00	110
	2.00	163

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.996[a]	7	1.428	2.006	.055
Intercept	5615.397	1	5615.397	7889.352	.000
Ad.Condition	5.916	3	1.972	2.771	.042
Prod.Cat.Inv.Median.Split	.352	1	.352	.495	.482
Ad.Condition * Prod.Cat.Inv.Median.Split	3.812	3	1.271	1.785	.150
Error	188.619	265	.712		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = ,050 (Adjusted R Squared = ,025)

3. Ad.Condition * Prod.Cat.Inv_1=Low,2=High

Dependent Variable: Att.Ad

Ad.Condition	Prod.Cat.Inv_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.661	.176	4.314	5.007
	2.00	4.411	.137	4.141	4.680
2.00	1.00	4.246	.165	3.920	4.572
	2.00	4.683	.132	4.424	4.942
3.00	1.00	4.761	.152	4.463	5.060
	2.00	4.741	.127	4.490	4.991
4.00	1.00	4.767	.154	4.463	5.070
	2.00	4.895	.133	4.632	5.158

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25.835[a]	7	3.691	3.972	.000
Intercept	7596.069	1	7596.069	8175.195	.000
Ad.Condition	4.536	3	1.512	1.627	.183
Prod.Cat.Inv.Median.Split	16.173	1	16.173	17.406	.000
Ad.Condition * Prod.Cat.Inv.Median.Split	6.824	3	2.275	2.448	.064
Error	246.228	265	.929		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = ,095 (Adjusted R Squared = ,071)

3. Ad.Condition * Prod.Cat.Inv_1=Low,2=High

Dependent Variable: Att.Prod.Category

Ad.Condition	Prod.Cat.Inv_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	5.435	.201	5.039	5.831
	2.00	5.632	.156	5.324	5.939
2.00	1.00	4.762	.189	4.389	5.134
	2.00	5.663	.151	5.367	5.960
3.00	1.00	5.439	.173	5.098	5.780
	2.00	5.605	.145	5.318	5.891
4.00	1.00	4.980	.176	4.633	5.327
	2.00	5.710	.152	5.410	6.010

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.551[a]	7	.650	.681	.688
Intercept	5139.106	1	5139.106	5380.365	.000
Ad.Condition	2.487	3	.829	.868	.458
Prod.Cat.Inv.Median.Split	.841	1	.841	.880	.349
Ad.Condition * Prod.Cat.Inv.Median.Split	1.301	3	.434	.454	.715
Error	253.117	265	.955		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = ,018 (Adjusted R Squared = -,008)

3. Ad.Condition * Prod.Cat.Inv_1=Low,2=High

Dependent Variable: Att.Brand

Ad.Condition	Prod.Cat.Inv_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.426	.204	4.025	4.827
	2.00	4.363	.159	4.051	4.675
2.00	1.00	4.208	.192	3.830	4.585
	2.00	4.546	.153	4.246	4.847
3.00	1.00	4.335	.176	3.990	4.681
	2.00	4.455	.147	4.164	4.745
4.00	1.00	4.580	.178	4.229	4.931
	2.00	4.640	.155	4.336	4.944

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.053[a]	7	1.008	.837	.557
Intercept	5305.992	1	5305.992	4409.335	.000
Ad.Condition	4.001	3	1.334	1.108	.346
Prod.Cat.Inv.Median.Split	.405	1	.405	.337	.562
Ad.Condition * Prod.Cat.Inv.Median.Split	2.613	3	.871	.724	.539
Error	318.889	265	1.203		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = ,022 (Adjusted R Squared = -,004)

3. Ad.Condition * Prod.Cat.Inv_1=Low,2=High

Dependent Variable: Att.Carmodel

Ad.Condition	Prod.Cat.Inv_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.461	.229	4.011	4.911
	2.00	4.326	.178	3.976	4.677
2.00	1.00	4.246	.215	3.823	4.670
	2.00	4.654	.171	4.316	4.991
3.00	1.00	4.458	.197	4.070	4.846
	2.00	4.541	.165	4.215	4.867
4.00	1.00	4.740	.200	4.346	5.134
	2.00	4.700	.173	4.358	5.042

7.4.2 PESI

Between-Subjects Factors

		N
Ad.Condition	1.00	61
	2.00	67
	3.00	75
	4.00	70
PESI_1=Low,2=High	1.00	108
	2.00	165

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.653[a]	7	1.236	1.724	.103
Intercept	5533.196	1	5533.196	7718.898	.000
Ad.Condition	5.173	3	1.724	2.406	.068
PESI.Median.Split	2.838	1	2.838	3.959	.048
Ad.Condition * PESI.Median.Split	.010	3	.003	.005	1.000
Error	189.962	265	.717		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = .044 (Adjusted R Squared = .018)

Ad.Condition * PESI_1=Low,2=High

Dependent Variable: Att.Ad

Ad.Condition	PESI_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.383	.177	4.035	4.730
	2.00	4.579	.137	4.309	4.849
2.00	1.00	4.394	.152	4.094	4.693
	2.00	4.617	.141	4.339	4.895
3.00	1.00	4.607	.163	4.287	4.928
	2.00	4.829	.122	4.589	5.070
4.00	1.00	4.719	.163	4.398	5.039
	2.00	4.916	.129	4.662	5.171

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	26.459[a]	7	3.780	4.078	.000
Intercept	7488.846	1	7488.846	8080.266	.000
Ad.Condition	1.188	3	.396	.427	.734
PESI.Median.Split	21.546	1	21.546	23.248	.000
Ad.Condition * PESI.Median.Split	2.035	3	.678	.732	.534
Error	245.604	265	.927		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = .097 (Adjusted R Squared = .073)

Ad.Condition * PESI_1=Low,2=High

Dependent Variable: Att.Prod.Category

Ad.Condition	PESI_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	5.165	.201	4.770	5.560
	2.00	5.795	.156	5.487	6.102
2.00	1.00	5.071	.173	4.731	5.411
	2.00	5.522	.160	5.206	5.838
3.00	1.00	5.000	.185	4.635	5.365
	2.00	5.837	.139	5.564	6.111
4.00	1.00	5.156	.185	4.791	5.520
	2.00	5.549	.147	5.260	5.838

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12.833[a]	7	1.833	1.984	.057
Intercept	5038.676	1	5038.676	5453.658	.000
Ad.Condition	3.362	3	1.121	1.213	.305
PESI.Median.Split	8.012	1	8.012	8.672	.004
Ad.Condition * PESI.Median.Split	2.958	3	.986	1.067	.364
Error	244.836	265	.924		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = .050 (Adjusted R Squared = .025)

Ad.Condition * PESI_1=Low,2=High

Dependent Variable: Att.Brand

Ad.Condition	PESI_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	3.965	.200	3.571	4.360
	2.00	4.642	.156	4.335	4.949
2.00	1.00	4.219	.173	3.879	4.559
	2.00	4.583	.160	4.268	4.899
3.00	1.00	4.207	.185	3.843	4.572
	2.00	4.517	.139	4.243	4.790
4.00	1.00	4.578	.185	4.214	4.942
	2.00	4.637	.147	4.349	4.926

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14.703[a]	7	2.100	1.788	.090
Intercept	5191.816	1	5191.816	4420.506	.000
Ad.Condition	5.323	3	1.774	1.511	.212
PESI.Median.Split	8.611	1	8.611	7.332	.007
Ad.Condition * PESI.Median.Split	2.350	3	.783	.667	.573
Error	311.238	265	1.174		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = .045 (Adjusted R Squared = .020)

Ad.Condition * PESI_1=Low,2=High

Dependent Variable: Att.Carmodel

Ad.Condition	PESI_1=Low,2=High	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.017	.226	3.572	4.462
	2.00	4.595	.176	4.249	4.941
2.00	1.00	4.297	.195	3.914	4.680
	2.00	4.667	.181	4.311	5.022
3.00	1.00	4.215	.209	3.804	4.625
	2.00	4.671	.156	4.363	4.979
4.00	1.00	4.681	.209	4.271	5.092
	2.00	4.740	.165	4.414	5.065

7.4.3 Perceived inconvenience

Between-Subjects Factors

		N
Ad.Condition	1.00	61
	2.00	67
	3.00	75
	4.00	70
Perceived.Inc.Median.Split	1.00	145
	2.00	128

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.123[a]	7	1.018	1.408	.202
Intercept	5806.946	1	5806.946	8036.087	.000
Ad.Condition	5.504	3	1.835	2.539	.057
Perceived.Inc.Median.Split	.500	1	.500	.692	.406
Ad.Condition * Perceived.Inc.Median.Split	.784	3	.261	.361	.781
Error	191.491	265	.723		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = ,036 (Adjusted R Squared = ,010)

Ad.Condition * Perceived.Inc.Median.Split

Dependent Variable: Att.Ad

Ad.Condition	Perceived.Inc.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.521	.148	4.230	4.813
	2.00	4.486	.161	4.169	4.802
2.00	1.00	4.529	.153	4.228	4.830
	2.00	4.500	.142	4.221	4.779
3.00	1.00	4.867	.131	4.608	5.125
	2.00	4.600	.148	4.309	4.891
4.00	1.00	4.846	.136	4.578	5.114
	2.00	4.832	.153	4.532	5.133

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25.036[a]	7	3.577	3.837	.001
Intercept	7949.881	1	7949.881	8528.323	.000
Ad.Condition	2.130	3	.710	.762	.517
Perceived.Inc.Median.Split	11.332	1	11.332	12.157	.001
Ad.Condition * Perceived.Inc.Median.Split	9.460	3	3.153	3.383	.019
Error	247.026	265	.932		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = ,092 (Adjusted R Squared = ,068)

Ad.Condition * Perceived.Inc.Median.Split

Dependent Variable: Att.Prod.Category

Ad.Condition	Perceived.Inc.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	5.485	.168	5.154	5.816
	2.00	5.643	.182	5.284	6.002
2.00	1.00	5.581	.173	5.239	5.922
	2.00	5.083	.161	4.766	5.400
3.00	1.00	5.933	.149	5.640	6.227
	2.00	5.030	.168	4.699	5.361
4.00	1.00	5.574	.155	5.270	5.879
	2.00	5.174	.173	4.833	5.516

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.244[a]	7	1.178	1.251	.275
Intercept	5315.909	1	5315.909	5647.854	.000
Ad.Condition	2.564	3	.855	.908	.438
Perceived.Inc.Median.Split	1.606	1	1.606	1.706	.193
Ad.Condition * Perceived.Inc.Median.Split	3.973	3	1.324	1.407	.241
Error	249.425	265	.941		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = ,032 (Adjusted R Squared = ,006)

Ad.Condition * Perceived.Inc.Median.Split

Dependent Variable: Att.Brand

Ad.Condition	Perceived.Inc.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.376	.169	4.043	4.708
	2.00	4.400	.183	4.039	4.761
2.00	1.00	4.432	.174	4.089	4.775
	2.00	4.400	.162	4.082	4.718
3.00	1.00	4.652	.150	4.358	4.947
	2.00	4.091	.169	3.758	4.423
4.00	1.00	4.636	.155	4.330	4.942
	2.00	4.587	.174	4.244	4.930

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16.091[a]	7	2.299	1.966	.060
Intercept	5466.687	1	5466.687	4675.389	.000
Ad.Condition	3.918	3	1.306	1.117	.343
Perceived.Inc.Median.Split	3.968	1	3.968	3.393	.067
Ad.Condition * Perceived.Inc.Median.Split	7.430	3	2.477	2.118	.098
Error	309.851	265	1.169		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = ,049 (Adjusted R Squared = ,024)

Ad.Condition * Perceived.Inc.Median.Split

Dependent Variable: Att.Carmodel

Ad.Condition	Perceived.Inc.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.376	.188	4.005	4.746
	2.00	4.379	.204	3.976	4.781
2.00	1.00	4.490	.194	4.108	4.873
	2.00	4.500	.180	4.145	4.855
3.00	1.00	4.852	.167	4.524	5.181
	2.00	4.067	.188	3.696	4.437
4.00	1.00	4.805	.173	4.464	5.146
	2.00	4.606	.194	4.224	4.989

7.4.4 Disposal of a car

Between-Subjects Factors

		Value Label	N
Ad.Condition	1.00		61
	2.00		67
	3.00		75
	4.00		70
Disposal.Car	1	Yes	52
	2	No	221

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10.232[a]	7	1.462	2.056	.049
Intercept	3368.343	1	3368.343	4738.290	.000
Ad.Condition	5.538	3	1.846	2.597	.053
Disposal.Car	2.232	1	2.232	3.140	.078
Ad.Condition * Disposal.Car	2.211	3	.737	1.037	.377
Error	188.382	265	.711		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = ,052 (Adjusted R Squared = ,026)

Ad.Condition * Disposal.Car

Dependent Variable: Att.Ad

Ad.Condition	Disposal.Car	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Yes	4.527	.254	4.027	5.028
	No	4.500	.119	4.265	4.735
2.00	Yes	3.982	.254	3.481	4.482
	No	4.618	.113	4.396	4.840
3.00	Yes	4.600	.193	4.219	4.981
	No	4.800	.113	4.578	5.022
4.00	Yes	4.727	.254	4.227	5.228
	No	4.861	.110	4.645	5.077

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16.884[a]	7	2.412	2.505	.017
Intercept	4540.900	1	4540.900	4715.683	.000
Ad.Condition	7.022	3	2.341	2.431	.066
Disposal.Car	7.843	1	7.843	8.145	.005
Ad.Condition * Disposal.Car	5.580	3	1.860	1.932	.125
Error	255.178	265	.963		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = ,062 (Adjusted R Squared = ,037)

Ad.Condition * Disposal.Car

Dependent Variable: Att.Prod.Category

Ad.Condition	Disposal.Car	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Yes	5.564	.296	4.981	6.146
	No	5.556	.139	5.283	5.829
2.00	Yes	4.455	.296	3.872	5.037
	No	5.482	.131	5.224	5.740
3.00	Yes	5.137	.225	4.694	5.580
	No	5.671	.131	5.413	5.930
4.00	Yes	5.218	.296	4.636	5.801
	No	5.431	.128	5.179	5.682

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.172[a]	7	1.167	1.240	.281
Intercept	3087.524	1	3087.524	3279.381	.000
Ad.Condition	1.721	3	.574	.609	.609
Disposal.Car	2.670	1	2.670	2.836	.093
Ad.Condition * Disposal.Car	2.085	3	.695	.738	.530
Error	249.496	265	.941		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = ,032 (Adjusted R Squared = ,006)

Ad.Condition * Disposal.Car

Dependent Variable: Att.Brand

Ad.Condition	Disposal.Car	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Yes	4.345	.293	3.769	4.921
	No	4.396	.137	4.126	4.666
2.00	Yes	4.291	.293	3.715	4.867
	No	4.439	.130	4.184	4.695
3.00	Yes	3.958	.223	3.520	4.396
	No	4.557	.130	4.302	4.812
4.00	Yes	4.418	.293	3.842	4.994
	No	4.651	.126	4.402	4.900

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.832[a]	7	1.262	1.054	.394
Intercept	3190.095	1	3190.095	2665.877	.000
Ad.Condition	1.305	3	.435	.364	.779
Disposal.Car	2.313	1	2.313	1.933	.166
Ad.Condition * Disposal.Car	1.761	3	.587	.491	.689
Error	317.110	265	1.197		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = ,027 (Adjusted R Squared = ,001)

Ad.Condition * Disposal.Car

Dependent Variable: Att.Carmodel

Ad.Condition	Disposal.Car	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Yes	4.327	.330	3.678	4.977
	No	4.388	.155	4.083	4.693
2.00	Yes	4.473	.330	3.823	5.122
	No	4.500	.146	4.212	4.788
3.00	Yes	4.137	.251	3.643	4.631
	No	4.632	.146	4.344	4.920
4.00	Yes	4.400	.330	3.751	5.049
	No	4.776	.142	4.496	5.057

7.4.5 Previous experience

Between-Subjects Factors

		N
Ad.Condition	1.00	61
	2.00	67
	3.00	75
	4.00	70
1=Little experience, 2=More experience	1.00	231
	2.00	42

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10.005[a]	7	1.429	2.008	.054
Intercept	2945.469	1	2945.469	4138.426	.000
Ad.Condition	4.418	3	1.473	2.069	.105
Previous.Exp.Median.Split	.353	1	.353	.496	.482
Ad.Condition * Previous.Exp.Median.Split	3.921	3	1.307	1.836	.141
Error	188.610	265	.712		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = ,050 (Adjusted R Squared = ,025)

Ad.Condition * 1=Little experience, 2=More experience

Dependent Variable: Att.Ad

Ad.Condition	1=Little experience, 2=More experience	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.523	.117	4.293	4.753
	2.00	4.400	.281	3.846	4.954
2.00	1.00	4.490	.109	4.276	4.704
	2.00	4.714	.319	4.086	5.342
3.00	1.00	4.660	.106	4.451	4.870
	2.00	5.217	.244	4.737	5.696
4.00	1.00	4.889	.113	4.667	5.111
	2.00	4.643	.225	4.199	5.087

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14.208[a]	7	2.030	2.086	.045
Intercept	4210.202	1	4210.202	4326.869	.000
Ad.Condition	3.611	3	1.204	1.237	.297
Previous.Exp.Median.Split	6.469	1	6.469	6.648	.010
Ad.Condition * Previous.Exp.Median.Split	5.118	3	1.706	1.753	.156
Error	257.855	265	.973		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = ,052 (Adjusted R Squared = ,027)

Ad.Condition * 1=Little experience, 2=More experience

Dependent Variable: Att.Prod.Category

Ad.Condition	1=Little experience, 2=More experience	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	5.554	.137	5.285	5.823
	2.00	5.578	.329	4.930	6.225
2.00	1.00	5.237	.127	4.986	5.487
	2.00	5.971	.373	5.237	6.706
3.00	1.00	5.394	.124	5.149	5.638
	2.00	6.283	.285	5.723	6.844
4.00	1.00	5.375	.132	5.115	5.635
	2.00	5.486	.264	4.967	6.005

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.081[a]	7	1.012	1.070	.383
Intercept	2706.236	1	2706.236	2861.883	.000
Ad.Condition	2.957	3	.986	1.042	.374
Previous.Exp.Median.Split	.363	1	.363	.384	.536
Ad.Condition * Previous.Exp.Median.Split	4.449	3	1.483	1.568	.197
Error	250.588	265	.946		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = ,027 (Adjusted R Squared = ,002)

Ad.Condition * 1=Little experience, 2=More experience

Dependent Variable: Att.Brand

Ad.Condition	1=Little experience, 2=More experience	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.450	.135	4.184	4.716
	2.00	4.022	.324	3.384	4.660
2.00	1.00	4.360	.126	4.113	4.607
	2.00	4.886	.368	4.162	5.609
3.00	1.00	4.343	.123	4.102	4.584
	2.00	4.733	.281	4.181	5.286
4.00	1.00	4.629	.130	4.373	4.884
	2.00	4.557	.260	4.045	5.069

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15.214[a]	7	2.173	1.854	.077
Intercept	2757.640	1	2757.640	2351.818	.000
Ad.Condition	6.841	3	2.280	1.945	.123
Previous.Exp.Median.Split	.000	1	.000	.000	.987
Ad.Condition * Previous.Exp.Median.Split	11.080	3	3.693	3.150	.026
Error	310.728	265	1.173		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = ,047 (Adjusted R Squared = ,021)

Ad.Condition * 1=Little experience, 2=More experience

Dependent Variable: Att.Carmodel

Ad.Condition	1=Little experience, 2=More experience	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.469	.150	4.174	4.765
	2.00	3.844	.361	3.134	4.555
2.00	1.00	4.407	.140	4.131	4.682
	2.00	5.257	.409	4.451	6.063
3.00	1.00	4.460	.136	4.192	4.729
	2.00	4.750	.313	4.135	5.365
4.00	1.00	4.818	.145	4.533	5.103
	2.00	4.314	.289	3.744	4.884

7.4.6 Age group

Age.Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-23	81	29.7	29.7	29.7
	24-26	158	57.9	57.9	87.5
	27-30	26	9.5	9.5	97.1
	30+	8	2.9	2.9	100.0
	Total	273	100.0	100.0	

Tests of Between-Subjects Effects

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.961[a]	7	1.137	1.581	.141
Intercept	4825.747	1	4825.747	6707.565	.000
Ad.Condition	5.665	3	1.888	2.625	.051
Age.Group.Median.Split	.621	1	.621	.864	.354
Ad.Condition * Age.Group.Median.Split	1.718	3	.573	.796	.497
Error	190.654	265	.719		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = .040 (Adjusted R Squared = .015)

Ad.Condition * Age.Group.Median.Split

Dependent Variable: Att.Ad

Ad.Condition	Age.Group.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.667	.219	4.235	5.098
	2.00	4.452	.125	4.206	4.698
2.00	1.00	4.422	.163	4.101	4.744
	2.00	4.575	.134	4.311	4.839
3.00	1.00	4.968	.195	4.585	5.352
	2.00	4.675	.113	4.452	4.898
4.00	1.00	4.890	.190	4.517	5.263
	2.00	4.820	.120	4.584	5.056

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.562[a]	7	.937	.936	.479
Intercept	6473.422	1	6473.422	6461.215	.000
Ad.Condition	.683	3	.228	.227	.877
Age.Group.Median.Split	.184	1	.184	.183	.669
Ad.Condition * Age.Group.Median.Split	3.791	3	1.264	1.261	.288
Error	265.501	265	1.002		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = .024 (Adjusted R Squared = -.002)

Ad.Condition * Age.Group.Median.Split

Dependent Variable: Att.Prod.Category

Ad.Condition	Age.Group.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	5.360	.258	4.851	5.869
	2.00	5.622	.148	5.331	5.912
2.00	1.00	5.489	.193	5.110	5.868
	2.00	5.195	.158	4.883	5.507
3.00	1.00	5.284	.230	4.832	5.736
	2.00	5.621	.134	5.358	5.885
4.00	1.00	5.450	.224	5.009	5.891
	2.00	5.376	.142	5.097	5.655

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.440[a]	7	.777	.817	.574
Intercept	4451.755	1	4451.755	4677.169	.000
Ad.Condition	1.747	3	.582	.612	.608
Age.Group.Median.Split	1.841	1	1.841	1.934	.166
Ad.Condition * Age.Group.Median.Split	1.299	3	.433	.455	.714
Error	252.228	265	.952		
Total	5681.120	273			
Corrected Total	257.669	272			

Ad.Condition * Age.Group.Median.Split

Dependent Variable: Att.Brand

Ad.Condition	Age.Group.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.507	.252	4.011	5.003
	2.00	4.348	.144	4.065	4.631
2.00	1.00	4.437	.188	4.067	4.807
	2.00	4.400	.154	4.096	4.704
3.00	1.00	4.726	.224	4.286	5.167
	2.00	4.296	.130	4.040	4.553
4.00	1.00	4.690	.218	4.260	5.120
	2.00	4.584	.138	4.312	4.856

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.674[a]	7	.953	.791	.595
Intercept	4588.063	1	4588.063	3808.203	.000
Ad.Condition	3.467	3	1.156	.959	.412
Age.Group.Median.Split	1.496	1	1.496	1.242	.266
Ad.Condition * Age.Group.Median.Split	1.414	3	.471	.391	.759
Error	319.268	265	1.205		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = .020 (Adjusted R Squared = -.005)

Ad.Condition * Age.Group.Median.Split

Dependent Variable: Att.Carmodel

Ad.Condition	Age.Group.Median.Split	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	1.00	4.587	.283	4.029	5.145
	2.00	4.309	.162	3.990	4.627
2.00	1.00	4.437	.211	4.021	4.853
	2.00	4.535	.174	4.193	4.877
3.00	1.00	4.674	.252	4.178	5.169
	2.00	4.450	.147	4.161	4.739
4.00	1.00	4.900	.245	4.417	5.383
	2.00	4.644	.155	4.338	4.950

7.4.7 Gender

Dependent Variable: Att.Ad

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11.522[a]	7	1.646	2.331	.025
Intercept	5869.338	1	5869.338	8313.396	.000
Ad.Condition	6.346	3	2.115	2.996	.031
Gender	3.909	1	3.909	5.537	.019
Ad.Condition * Gender	1.638	3	.546	.773	.510
Error	187.093	265	.706		
Total	6127.160	273			
Corrected Total	198.615	272			

a. R Squared = ,058 (Adjusted R Squared = ,033)

3. Ad.Condition * Gender

Dependent Variable: Att.Ad

Ad.Condition	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Male	4.413	.149	4.120	4.705
	Female	4.607	.156	4.300	4.914
2.00	Male	4.509	.142	4.229	4.788
	Female	4.519	.149	4.226	4.811
3.00	Male	4.585	.135	4.320	4.850
	Female	4.928	.140	4.652	5.204
4.00	Male	4.656	.135	4.391	4.921
	Female	5.071	.151	4.774	5.368

Tests of Between-Subjects Effects

Dependent Variable: Att.Prod.Category

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.956[a]	7	1.137	1.140	.338
Intercept	8049.533	1	8049.533	8076.775	.000
Ad.Condition	2.704	3	.901	.904	.439
Gender	3.759	1	3.759	3.772	.053
Ad.Condition * Gender	1.197	3	.399	.400	.753
Error	264.106	265	.997		
Total	8382.480	273			
Corrected Total	272.062	272			

a. R Squared = ,029 (Adjusted R Squared = ,004)

3. Ad.Condition * Gender

Dependent Variable: Att.Prod.Category

Ad.Condition	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Male	5.494	.176	5.146	5.841
	Female	5.628	.185	5.263	5.993
2.00	Male	5.257	.169	4.925	5.589
	Female	5.375	.176	5.028	5.722
3.00	Male	5.323	.160	5.008	5.638
	Female	5.767	.166	5.439	6.094
4.00	Male	5.287	.160	4.972	5.602
	Female	5.535	.179	5.182	5.889

Tests of Between-Subjects Effects

Dependent Variable: Att.Brand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	13.228[a]	7	1.890	2.049	.049
Intercept	5389.872	1	5389.872	5843.200	.000
Ad.Condition	2.593	3	.864	.937	.423
Gender	9.187	1	9.187	9.960	.002
Ad.Condition * Gender	1.177	3	.392	.425	.735
Error	244.441	265	.922		
Total	5681.120	273			
Corrected Total	257.669	272			

a. R Squared = ,051 (Adjusted R Squared = ,026)

3. Ad.Condition * Gender

Dependent Variable: Att.Brand

Ad.Condition	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Male	4.306	.170	3.972	4.641
	Female	4.476	.178	4.125	4.827
2.00	Male	4.211	.162	3.892	4.531
	Female	4.638	.170	4.303	4.972
3.00	Male	4.149	.154	3.846	4.452
	Female	4.683	.160	4.368	4.999
4.00	Male	4.462	.154	4.159	4.764
	Female	4.806	.172	4.467	5.146

Tests of Between-Subjects Effects

Dependent Variable: Att.Carmodel

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	40.372[a]	7	5.767	5.352	.000
Intercept	5587.829	1	5587.829	5185.337	.000
Ad.Condition	5.011	3	1.670	1.550	.202
Gender	34.076	1	34.076	31.621	.000
Ad.Condition * Gender	1.401	3	.467	.433	.729
Error	285.570	265	1.078		
Total	5925.520	273			
Corrected Total	325.941	272			

a. R Squared = ,124 (Adjusted R Squared = ,101)

3. Ad.Condition * Gender

Dependent Variable: Att.Carmodel

Ad.Condition	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.00	Male	4.106	.184	3.745	4.468
	Female	4.676	.193	4.296	5.055
2.00	Male	4.223	.175	3.877	4.568
	Female	4.794	.184	4.432	5.155
3.00	Male	4.123	.166	3.796	4.450
	Female	4.922	.173	4.582	5.263
4.00	Male	4.318	.166	3.991	4.645
	Female	5.219	.186	4.852	5.586