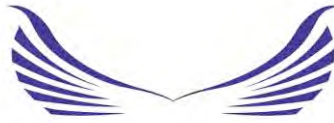




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How is green seen? Exploring the impact of visual elements in 'green' advertising.

By

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of

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Abstract

The influence of visual elements in green print advertising to potentially affect changes in human consumptive practices has been explored in this dissertation. This was investigated via web-based questionnaires administered to business school students ($n = 135$) where the manipulation of the key visual elements of extent of visuals used relative to the copy, and the inclusion of visual rhetoric (i.e. the use of imagery to convey a message) were explored.

To determine this, varying sets of adverts were presented and respondents were requested to rate their *attitude towards the advert*, their *likelihood to purchase* the product shown, and to indicate which adverts they *preferred*. Potential moderating variables related to the observer (i.e. need for cognition and need for emotion) and the adverts (i.e. product type and brand) were also evaluated.

The findings demonstrated that visuals with in adverts and the use of visual rhetoric could produce statistically different results form adverts without these visual elements. However there was also evidence to suggest that the use and application of visuals is complex in nature and not easily achieved in practical applications. The main reasons for this related to the fact that it is difficult to define visuals at the exclusion of other variables; and that the manner in which a consumer processes this visual is a key determinant that is influenced by processing style/attitude and is consequently not easily controlled.

The research also attempted to explore the impacts of related moderator variables such as product type and familiarity of brand but due to design constraints and difficulties in explaining findings such results proved inconclusive.

The research report concludes with recommendations for future research and application; stressing the importance of the end goal of sustainable consumption.

Declaration

I declare that that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Ross James Liston

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1 INTRODUCTION TO RESEARCH PROBLEM

1.1 Research Problem

Human consumptive behaviour presents an issue for the environment and society; from the perspective that unabated consumption, use and disposal, negatively impact on the physical environment and the people that inhabit it. The evidence for this is well documented in numerous studies and Bhate & Lawler (1997) tell us that concerns over consumption and its impact on the environment has been an issue of concern as far back as 1798, but have been most prominent since the inception of Earth Day (Kim & Choi, 2005). A review paper by Kilbourne & Beckmann (1998) shows however, that the groundswell of concern for the environment has been most pronounced since the early 1970's. In today's media, environmental issues almost take centre stage in popular media; with the primary topic being that of global warming and the lobbying of government, business and civil society to alter consumptive patterns to be more sustainable.

Negative public sentiment regarding concerns for the environment has created an expectation that producers and consumers will reduce and/or change consumption in an effort to minimise this environmental impact. These stakeholder demands have resulted in companies moving beyond compliance with environmental regulatory issues to the point where they have begun introducing alternative products that are classified as 'green' (Todd, 2004).

For such products and services to become more commonplace purchases by the typical consumer, requires that consumer behaviour be influenced through marketing communications, in particular advertising. The reason for this is that in its simplest form, information presented in adverts attempts to convey the need to modify consumptive patterns (in particular by encouraging the purchase of one good or service over another and to change associated behaviours).

Not only are there adverts explicitly focussed on specific 'green' products or services, but Todd (2004, p92) indicates advertising (and image created by the brand) can also be influential in highlighting the broader environmental consciousness of the company or organisation. The intention is that the 'consciousness of a company' establishes a bond with the values and predisposition of consumers, which influences 'what' and 'how' they buy.

Consequently green/environmental advertising has been on the rise (Banerjee, Gulas, & Iyer, 1995) and more and more producers have been enlightening their consumers about pro-environmental aspects of their products, services and the general manner in which they operate; attempting to create 'green consumerism'. Yet a decade later Peattie & Crane (2005, p.357) state that on the whole "green marketing gives the impression it has underachieved". Furthermore, Kollmuss & Agyeman (2002) have alluded to the gap between consumers' behavioural intent in the context of the environmental knowledge they possess and their actual "pro-environmental behaviour". Unfortunately as Montoro-Rios, Luque-Martínez & Rodríguez-Molina (2008, p 547) highlight, there is limited scientific literature available that considers the impact of environmental information in creating new attitudes toward products or brands. Consequently the reasons for the limited traction in altered consumer behaviours are still to be thoroughly explored, both in terms of message relevance in the advert and message interpretation by the observer.

Some of the potential reasons for the lack of success are explored in the Peattie & Crane (2005) paper, in which they highlight that much of the green marketing in evidence had been 'misconceived'; but it is Young, Hwang, McDonald & Oates (2009) who infer that for the 'green' message to be effective to the point that it influences purchasing behaviour, it needs to address the 'attitude-behaviour gap' to enable the concern for the environment to translate into green purchases.

In addition it also pertinent to consider whether these findings are applicable to all product types. The relevance for this stems from the differing attitude and behaviour associated with goods purchased for differing reasons, such as symbolic products (e.g. designer products) compared with utilitarian products (e.g. a product purchased for more regular consumption) (Ang & Lim, 2006).

Since the attitude-behaviour gap is relevant, it is necessary to understand how consumers perceive and process environmental issues. In this regard it has been established that environmental issues are typically considered to be 'emotional' in nature (Nicholson-Cole, 2005, p260); inferring that an environmental issue has stronger relation with the affect/emotion of the consumer than with their cognition. The importance of this is the fact that much research (unrelated to the environment) has been undertaken regarding consumer emotion and cognition and the implication thereof for advertisers intending to change consumer behaviour; the results of which would have relevance for green advertising.

A portion of this literature has related to the manner in which the aspects of emotion and cognition are deemed to result in varying efficacy of visuals and copy (i.e. verbal or text content) in advertising (Kim & Lennon, 2008). The premise is that visual elements of adverts are more influential to consumer behaviour when the issue is emotionally loaded (as is explained in Chapter 2); and since environmental issues are deemed to be emotionally loaded, the prevalence of visuals in related advertising may hold the key to bringing about altered consumption. The reciprocal is that adverts that are predominantly verbal would be more influential for individuals with high cognition.

Although these generalisations are made on numerous occasions in the literature, and additional arguments made that visual elements (such as logos, signs, colours, etc.) are universal; Callow & Schiffman (2004, p1113) highlight that just as verbal language varies between cultures so too does localised visual language have a specific cultural context in which it is applicable (this includes visual rhetoric and

semiotics). Hence the intended message to be conveyed as part of global advertising campaigns may only be applicable in certain contexts if inappropriate imagery is used; but the opportunity exists to use universally accepted and understood visual elements.

It is on this basis that environmental campaigns are predominantly based around a similar global message (e.g. global warming, natural resource usage, etc) and portrayed in a similar manner through print media; that it is postulated that amongst other things it may be that the manner in which the message is visually and/or verbally delivered, that determines how successfully the message is being comprehended.

This reliance on imagery is due to the complexity and abstraction of environmental issues such as climate change that make it difficult to communicate simply through copy (Sheppard, 2006), as is typically required in advertising. Similarly visual imagery with the appropriate contextual representations relevant to the viewer helps people to relate their actions to the larger state of climate change (Nicholson-Cole, 2005).

The simplified or abstract representation of these complex environmental conditions has become more reliant on metaphorical and other rhetorical representations to convey the message; for example illustrating the menace of global air pollution as an anthropomorphized Earth struggling to breathe. Consequently visual and verbal rhetorical representations are being used increasingly in advertisements (particularly print) (Phillips and McQuarrie, 2002). This is because the incongruity in visuals, or in the combination of headline and visuals, attracts attention and causes consumers to use more cognitive effort to interpret the advertisement. If the “effort is rewarded with relevant meanings, consumers will comprehend and appreciate the advertisement more”. Visual rhetorical representations may elicit more meanings than verbal rhetoric since they express a claim indirectly (McQuarrie and Phillips, 2005).

One of the visual formats that plays a role in this regard is the company or brand logotype (logos) since they are akin to recognizable “signatures” that provide the viewer with “immediate recognition” and/or “raised awareness” of a particular brand (Decrop, 2007, p.511). The logo is akin to the “whole of a brand being distilled into a (visual) single sign” (Scott, 2008, p355). Consequently, as Yu (2006, p10) emphasizes, the design of visual communication has been the most important medium to ensure brand success. He states that while certain people view visual communication as the creation of visually spectacular artwork; visuals represent the interface between verbal and non-verbal communication elements, thereby playing a key strategic role in the success of many brands (Bulmer & Buchanan-Oliver, 2006), and the intended consequence of changing purchasing behaviour.

1.2 Research Objectives

Given that there is a need to persuade consumers to reduce and/or change their consumptive patterns for more environmentally friendly alternatives, and that past efforts to do so (through advertising) have proved to not be ineffective; the primary objective of this research is to ascertain the impact on consumers of the visual portion (i.e. the visual elements) of ‘green’/environmental advertising. This aspect of the advertising message has been considered in particular; since it has been determined that visuals are effective in aiding learning, communication and comprehension; and are also recognised as an efficient way to convey information to facilitate decision-making (Bauer & Johnson-Laird, 1993; Engelhardt, 2007; Scott, 2008; Spatler & Van Dam, 2008; Tversky, Morrison & Betrancourt, 2002).

More specifically, this research intends to explore the visual elements used in green advertising to determine how effective and influential these aspects are in contributing to the success of a green brand. By determining what are the best means to visually communicate the green proposition, the means would exist to influence the consumption behaviour of the individual. In turn this would

supposedly influence aggregate consumption (Schaefer & Crane, 2005) and in the longer-term influence environmental impact.

1.3 Research Scope

There are vast number of channels and formats through which environmental messaging can be communicated, such as print, radio, television and new media (i.e. web-based and cellular). In addition there are large arrays of messages that can be conveyed in varying contexts, such as corporate communications, environmental campaigns and product-related advertising. However, for the purposes of this assignment, the scope of this research is restricted to print media and will consider messages specifically associated with the retail of green products.

Lastly, there are numerous visual elements present in advertising, such as colour, size, shape, familiarity and resonance of image, etc. but for the purpose of this exploratory research the two main focus areas to be considered are: i) the extent of visuals in the advert (compared with the extent of copy) and ii) visual rhetoric, as a preferred format to convey complex environmental issues.

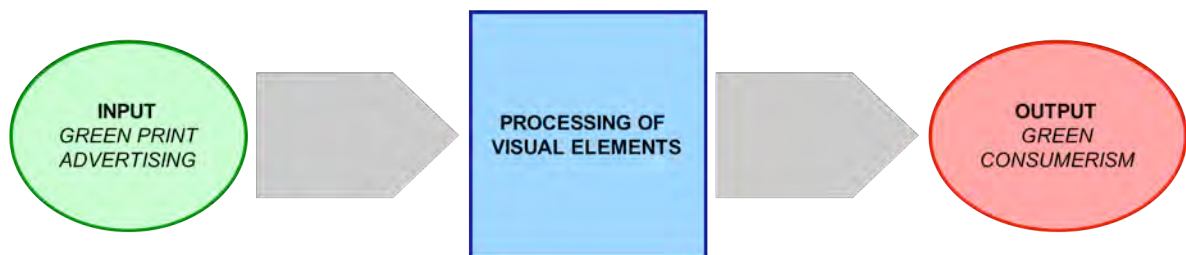
The effect of these will be evaluated in the context of attitude towards the adverts presented; the likelihood the good/s presented will purchased and preferences for varying adverts displayed for consideration.

From the introduction to the research problem, it is also recognised that there are a number of moderating factors that may be influential on the results of the research – both from the perspective of the advert and from the observer. To this end, the research will also measure the extent of influence that comes from the use of branding (known versus fictitious) and product type (symbolic versus utilitarian) in the adverts themselves; and lastly the cognitive and emotional predispositions of the observer. The relevance of these moderators is expanded upon in Chapter 2.

1.4 Summary

The mounting concern for the environment resulting from human impact has presented an opportunity for advertisers to increasingly persuade consumers to switch to more environmentally friendly services, products and brands. The existing knowledgebase regarding how to employ visual elements specifically in green advertising to effect such change is limited. This research will explore how the abovementioned visual elements are perceived in such adverts with a view to identifying how effective they are in conveying the green proposition to consumers. This is presented conceptually in Figure 1 below.

Figure 1: High-level conceptual model of research topic.



1.5 Report Layout

The layout of this report is as follows:

- Chapter 1: Introduction (this chapter) - describes the research problem; the research objective and research scope.
- Chapter 2: Literature Review – presents the literature relating to the research problem; with the three key focus areas being i) environmental issues and green consumerism; ii) the key interactions between consumers and advertising, and iii) the secondary market aspects that influence this interaction.

- Chapter 3: Research Questions & Hypotheses – lists the various research questions posed and related hypotheses to be tested in relation to this research;
- Chapter 4: Research Design & Method – presents all the details of the approach and methodology adopted; sample characteristics; sampling and data analysis procedures followed;
- Chapter 5: Results – the findings of the research specifically in relation to the hypotheses are presented in this chapter;
- Chapter 6: Discussion of Results – the data presented in the preceding chapter is discussed and explained in relation to the research problem posed in Chapter 1, the literature presented in Chapter 2 and the research questions and hypotheses posed in Chapter 3;
- Chapter 7: Conclusion – this chapter wraps up the report by highlighting the main findings and indicating how these findings are of relevance to academia and practitioners in the field. Recommendations for future research are also presented.
- Chapter 8: References – provides a list of all literature and information sources used in this research.
- Appendixes – the questionnaires used as well as the scales applied are contained in the appendix to the report. Additional statistical results are contained herein.

2 LITERATURE REVIEW

There are three main sections to this chapter:

- The first section considers environmental issues and the resultant advent of green consumerism and green advertising – contextualising the problem at hand.
- The second section addresses key interactions between consumers and advertising – namely, the influence of the emotional and cognitive disposition of consumers; and the role of visual persuasion in advertising relative to this disposition.
- The third section draws attention to secondary market factors that are influential to the consumer : advertising interaction, in particular product type and familiarity of brand.

This literature reviewed in this chapter informs the research questions to be addressed (i.e. Chapter 3) and the methodology by which to address them (i.e. Chapter 4).

2.1 Environmental Issues and Consumption

“... a niche market of ecologically minded consumers has emerged, provoking a variety of corporate responses to this popular re-evaluation of human consumption habits”.

Todd (2004, p 87)

2.1.1 Advent of Green Consumerism

The dominant social paradigm of consumption that is present in many developed and developing societies has contributed to environmental decline through the associated consumptive practices (Kilbourne & Carlson, 2008, p80). Consequently there is a need to identify the means to reduce environmental degradation to avert a catastrophe.

In this regard, it has been proposed that this pending global environmental crisis that takes centre stage in much of the global socio-political debate, can only be resolved through concerted action by producers to influence their stakeholders, specifically their consumers (Bibri, 2008). Consequently, corporate strategies regarding marketing and communications, the key interface between the corporation and the consumer, need to play a crucial role in ensuring that they are cognisant of the stakeholders that they influence or are influenced by. To this end, the last couple of decades has seen the growth of the "green consumerism" phenomenon - in which “consumers' purchase, usage and disposal decisions are driven by the desire to preserve nature's ecological balance” (Carlson, Grove & Kangun, 1993, p28).

Todd (2004) states that these green consumers share common values in their concern for the state of the environment and their awareness of the effect of over-consumption on the rate of environmental devastation. Consequently these

environmental consumers make decisions around three primary motives, namely: preservation of the planet, preservation of personal health, and preservation of animal life (Iyer & Banerjee, 1993). As a result, corporate communication that entails any one or more of these motives is more likely to make an impression on consumers.

In addition, consumers concern themselves with an increased emphasis on the 'eco-cost' of a product, which includes its collective social and long-term economic impacts (Todd, 2004) as related to the motives listed above. Irrespective of whether the environmental issue being considered is the ozone hole in the atmosphere, over-exploitation of our oceans or green house gas generation the result of this has influenced producers to reconceptualise production-consumption systems; considering several basic tenets:

- ecosystems in which producers operate pose a physical limitation on production (i.e. the environment has as much influence on the organisation as the organisation may have on the environment);
- producers must account for the entire product life cycle (i.e. the organisation's concern must range from 'cradle to grave') ;
- pollution prevention and resource recovery are appropriate sustainable business practices (i.e. there are business benefits over and above them being 'necessary evils');
- small environmental improvements translate into large absolute improvements; and
- sustainable marketing is not an exercise in corporate altruism, but a societal responsibility.

Yet ironically, Todd (2004, p 87) also argues that green consumerism does not address the origins of environmental problems because it does not necessarily

lead to reduced consumption, particularly by the end consumers. In other words the end consumer is the key contributor to the problem as they create the demand for the goods and services that create the environmental externality.

2.1.2 *Green Marketing and Scepticism of 'Green Washing'*

Without reduced consumption additional problems may manifest and those present may be exacerbated. Thus, efforts to improve the image of a business in terms of its impact on the environment in producing its products, as opposed to curbing consumption per se are deemed '*corporate green-washing*', and are criticised for giving consumers the wrong impression about "green" business practices (Kärnä, Juslin, Ahonen & Hansen, 2001).

Shrum, McCarty & Lowrey (1995) state that this is partly due to the fact that the term "green" is typically being used interchangeably with "pro-environmental." To generalise, the term "green" basically indicates that there is some degree of concern for the physical environment (be it air, water, land). However Shrum et al. (1995) go on to state that being 'green' is not a clearly defined state and that even in the early 1990's, authors on the subject were differentiating between various levels of greenness such as '*True-Blue Greens*', '*Greenback Greens*', '*Sprouts*', '*Grouzers*' and '*Basic Browns*' (Iyer & Banerjee, 1993). However, for this piece of research it is only relevant to know that a 'green consumer' is considered to be anyone whose purchase behaviour would alter or has altered due to a genuine concern for the environment.

Irrespective of the ambivalences around a definition for a 'green consumer', it is important that producers thoroughly assess societal and ecological forces in their external environment so that they can adapt to changes in stakeholders' requirements and their perceptions of sustainability issues (Bibri, 2008). By default the primary means to achieve this remains using 'green' marketing initiatives - in

spite of the apprehension that certain consumers may have towards them (Sheppard, 2006).

Yet while common sense would suggest that the use of green marketing would be as rewarding for producers as it would allow consumers to be engaged irrespective of their standing on the validity of the green marketing initiative; research indicates that the application of such concepts presents a challenge (Jenner, 2005). In this regard it has also been determined that green consumers must be treated carefully as they appear to be atypical careful and thoughtful consumers who might switch companies (i.e. producers) or brands if the perceived issue is not seen to be addressed (Mostafa, 2006). The effort in communicating with these consumers needs to be thoroughly thought out.

Consequently producers find themselves in a predicament, as on one hand there is a scepticism regarding the severity of certain green issues such as climate change and how they should be addressed (Reddy & Assenza, 2009); while on the other hand there are consumers so adamant in their concern for the environment that they'd be willing to switch products. Therefore it is important for producers to be cognisant of the factors that do influence green consumerism and adjust accordingly; as this green consciousness remains a matter of market relevance (Mostafa, 2006).

2.1.3 Green Purchase Behaviour and the Role of Green Advertising

Research undertaken in North America, Australasia, and Europe, has shown that there are a number of factors influencing green purchase behaviour. These are:

- environmental knowledge,
- environmental concern,
- attitudes toward green products,

- perceived consumer effectiveness,
- altruism and scepticism towards environmental claims (Mostafa, 2006).

What is evident is that much of the information that consumers obtain about these factors is obtained from and influenced by mass media, in particular advertising (Iyer and Banerjee 1993).

What then defines green advertising? As per Banerjee, Gulas & Iyer's (1995, p22) definition, green advertising is defined as any advert that meets one or more of the following criteria:

- "It explicitly or implicitly addresses the relationship between a product/service and the biophysical environment.
- It promotes a green lifestyle with or without highlighting a product/service.
- It presents a corporate image of environmental responsibility".

Further to this definition, Todd (2004, p92) infers that green advertising (and in some instances the image created by certain brands) can also highlight a company's environmental consciousness. The intention being that the 'consciousness of a company' establishes a bond with the values of consumers, which then in turn influences 'what' and 'how' they buy. If this is so, then advertising is a persuasive strategy in exposing a company's consciousness and business values (Todd, 2004) to potential consumers.

In Chapter 1 it was highlighted that the state of green/environmental advertising had been on the increase over the last number of decades and a growing number of producers were enlightening their consumers about pro-environmental aspects of their products and services. Yet in spite of these efforts, there had not been the equivalent shift in consumption.

A key reason that has been presented to explain this (over and above concerns of green washing) is the fact that green adverts have been beleaguered by low credibility (Iyer and Banerjee 1993), suspicion and confusion (Carlson, *et al.*, 1993). Consumers don't believe the claims made. In addition, 'advertising-speak' such as "environmentally friendly", "recyclable", "safe", and "natural" is overused and represents concepts not fully understood by the end consumer (Mostafa, 2006). This confusion is created by producers applying the same terms to highlight different environmental benefits; and the fact that the environmental issues alluded to are complex and require scientific knowledge to be fully understood (Carlson, *et al.*, 1993). Lastly, there is a tendency for many of the green adverts to focus on the producer and the production process as opposed to emphasising the consumer and consumption (Montoro-Rios, *et al.*, 2008; Young, *et al.*, 2009); in essence allowing the consumer to maintain consumptive practices although potentially switching to 'greener' options.

Aside from credibility issues with the adverts, additional reasons proposed for the failure of green advertising and related marketing initiatives stem from concerns around "excessive price premiums for environmentally friendly products, reluctance to change purchasing habits, little societal pressure to conform and inability to identify the real environmental attributes" (Tang, Fryxell, & Chow, 2004, p 89). These authors highlight that while consumers may articulate a concern and commitment for green products, such products are only truly considered when they are at least equivalent to existing products in terms of price, performance and convenience.

Nevertheless as Sheppard (2006) states, the intention of green advertising, as it is with advertising in general, is to influence consumer behaviour in the context of such trends. He goes on to state that the extent of this influence depends on the associated information being 'visual, vivid, and personal'. His reasoning is that such characteristics are associated more with feelings (emotions) than with thoughts (cognition) – which in turn has more influence on behaviour, even

triggering pro-environmental behaviours. The emphasis of the influence of visual elements is further supported by Korfiatis, Stamou, & Paraskevopoulos (2004) who established that images of nature influence individual behaviour; resulting in a keenness to make the necessary modifications to protect the environment.

These comments demonstrate that producers are focussing on the format and content of the information contained in the advert as well as characteristics of consumer themselves, as is explored in greater detail below (Section **Error! Reference source not found.**).

In summary it is evident that the prevalence of green advertising is increasing. It would appear that the motivation to do so may be largely influenced by a 'green-washing' trend; whereas the true intension should be to influence consumption behaviour of the individual so that they may in turn influence aggregate consumption (Schaefer & Crane, 2005) and in the longer-term influence environmental impact. A key consideration to achieve these ends is based on the content and format of the environmental advertising employed.

2.2 Key Interactions Between Consumers and Advertising

"Consumers 'change their minds' about a product, then they change their attitude, and then they act".

Hall (2002, p 23)

The preceding section highlighted the need to influence consumption so as to bring about the change that is necessary to avert further environmental impact. This sections draws attention to several models to explain the key interactions between consumers and advertising.

2.2.1 The Consumers Behaviour Model

Many consumer behaviour models have been developed to explain how consumers purchase products and services. Some of these have focussed on the factors that influence behaviour (such as personal factors (e.g. psychological factors such loyalty), factors in the immediate environment (e.g. sociological factors such as peer influences), and factors in the broader environment (e.g. societal norms)). Others have considered the sequence of phases that consumers go through to make their decisions to purchase; both of these have varying degrees of overlap with the 'thinking–feeling–behavioural intention' (the attitudinal aspects of cognitive-affective-conative considerations)(Kotler & Armstrong, 2008).

Aspects of each of these model types has relevance to this research in that the factors influencing consumer behaviour relate to concern for the environment, concern for one's health and for broader sustainability related matters as documented in the preceding section.

With respect to the phases a consumer goes through the Lavidge and Steiner (1961) on marketing communications model, presented below, illustrates how messages must be tailored to reach the consumer. This communications model is supported by an advertising model, before the consumer attitudinal model is described (Section 2.2.3)

2.2.2 The Phases a Consumer Goes Through Before Purchase: Marketing Communications and the Advertising model

The Lavidge and Steiner model proposes seven phased through which the consumer passes from unawareness of a product or service to purchase. The phases are *unawareness, awareness, knowledge, liking, preference, conviction, and purchase*. In link with the attitudinal aspects is illustrated by awareness and knowledge being aligned to the cognitive stage; with liking, preference, and

conviction making up the affects stage, and the action of purchase the conative (or behavioural) stage.

Although advertising is intended to encourage an increase in sales of goods and services, the above seven-stage model indicates that there is a lengthy process that the consumer must pass (Lavidge & Steiner, 1961). The degree of commitment required (be that economic and or psychological) influences the immediacy of the purchase action – i.e. the purchase of a costly industrial good will be a more prolonged process than impulse purchase. The advertisements used for these various purchases are specifically designed for the various stages. In general there are three major functions of advertising, namely:

1. Provide information;
2. Develop a favourable attitudes toward the product or service;
3. Cause the product or service to be purchased.

This is in line the cognition, affect and conation stages listed above.

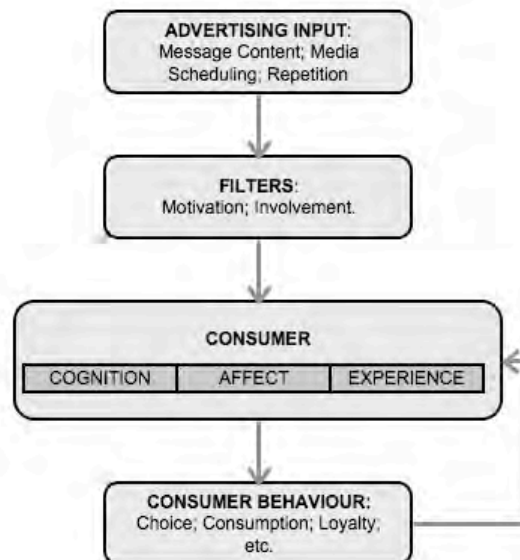
Aside from the message, it is necessary to consider the ‘vehicle’ of the ‘transaction’ that is adopted to influence consumer behaviour, namely marketing communications, in particular advertising. In its simplest form, information presented in adverts attempts to convey the need to alter consumptive patterns (in particular encouraging the purchase of a good or service over another).

In their review paper on how advertising works, Vakratsas & Ambler (1999) state that advertising has a purposeful structure and approach often centred around a theoretical model. The authors highlight the commonly applied "hierarchy of effects" advertising model, the AIDA (which alludes to the linear process of *Attention to Interest to Desire to Action*; which a consumer is deemed to go through). Their paper describes a plethora of advertising model types, all of which comprise some or all of the elements shown in Figure 2 below.

This model postulates that there needs to be a mental impression before behaviour is influenced. The model also illustrates that reaction to advertising is influenced by factors such as motivation, ability to process the advert and attitudes toward the advert. It thereby demonstrates the complexity of factors that are involved in responding to an advert.

In spite of its widespread application there is criticism of the AIDA model. Hall's (2002) quotation at the beginning of this section infers that there is a need within the advertising fraternity to move away from 'reliance on hierarchical models of advertising's effects', since the process may begin with cognition but transforms into affect/emotion and then into behaviour. Nevertheless, the model serves to highlight the relationship between the adverts' content and consumer behaviour.

Figure 2: A framework for studying how advertising works (after Vakratsas & Ambler, 1999)



A layperson may be inclined to think that advertising is intended to directly lead to an increase in sales of goods, yet the above multistage-stage model indicates that there is a lengthy process that the consumer must pass prior to the actual

purchase decision is made. The speed at which the consumer ‘passes’ through this process and thereby influences the immediacy of the purchase action is influenced by the degree of commitment required of the consumers (be that economic and or psychological) – i.e. the purchase process for a more costly symbolic good is more inclined to be drawn out when compared with a utilitarian good.

2.2.3 *Consumer Attitude: Cognitive and Emotional Disposition of Consumers*

Haddock & Zane (1993) state that one of the more prevalent areas of investigation in the field of social psychology and advertising is the study of personalities and attitudes. The attitude concept is an important one, because attitudes guide behaviour – which include choice and consumption (refer Figure 2). In particular, much interest has been shown in cognition and affect/emotion. Cognition, which is colloquially termed the ‘thinking’ dimension of a person’s response, and emotion/affect, which is colloquially termed the ‘feeling’ dimension, are considered to be influential on advertising effectiveness (Mukherjee, 2002).

Research (Ruiz & Sicilia, 2004) indicates that persuasive appeals of adverts are more effective when the form of the appeal is similar to either of the two processing styles. In so doing it helps researchers to understand the reasons why some individuals differ in their responses to advertising stimuli.

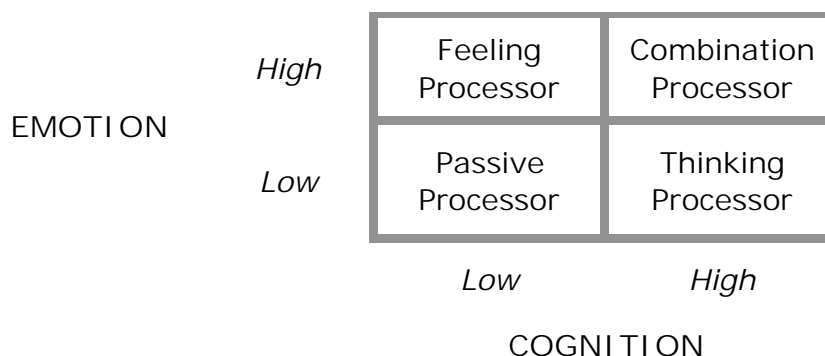
There are a number of instruments and scales that ‘measure’ these personality dispositions such as for cognitive style, where the measure often used is referred to as the *Need for Cognition* (NFC) scale (Ruiz & Sicilia, 2004; Sojka & Giese, 2006). Although every point along the NFC scale is representative of a particular level of cognition, researchers will typically distinguish between two groups of individuals along the continuum, namely high and low NFC individuals; and on occasion will create a third ‘moderate’ group in between, which still has purpose of highlighting ‘high’ and ‘low’.

Cognition represents one of the modes of processing; yet individuals may also differ in the manner they respond to affective or emotional stimuli. As with cognition, there are a number of commonly used scales associated with affect/emotion. These include the *Feeling-Belief* measure (Haddock and Zanna, 1993), *Preference for Affect* (PFA) scale (Sojka and Giese, 1997) and the *Need For Emotion* (Raman, Chattopadhyay & Hoyer, 1995).

Of these our focus is on Need for Emotion (NFE). NFE was developed to tap into individuals' "tendencies to process affective or emotional stimuli" because it is believed that "cognition represents only one mode of information processing" (p. 537). "The need for emotion is defined as the tendency or propensity for individuals to seek out emotional situations, enjoy emotional stimuli, and exhibit a preference to use emotion in interacting with the world" (Raman, *et al.*, 1995, p. 537).

When research was initially undertaken on these processing styles, cognition and emotion were treated as opposites (Sojka & Giese, 2006). Cognitive processors were seen to be wholly dependent on logic and data to make decisions. In essence they rely on their thoughts to make decisions (Cacioppo & Petty, 1982), whereas emotional processors were seen to be persuaded by emotionally charged advertising appeals. It has since been determined that the two processing types may be treated independently, but in all likelihood they work in an integrated manner (refer to the integrated matrix in Figure 3).

Figure 3: Classification according to processing style (or cognitive and emotional disposition) (modified from Sojka & Giese, 1997).



With respect to this matrix the ‘thinking processors’ have been shown to process and evaluate advertising *information* more thoroughly than the ‘passive processors’. Consequently, advertising communication has been observed to have better results for high NFC individuals (the ‘thinkers’) when the advert is dense with information. Similar research has shown that individuals with relatively high emotion intensity (the ‘feelers’) have a limited response to adverts that have non-emotional appeal (such as a ‘text-rich’ advert) but have a more pronounced response to emotional advertising (which is typically ‘visual’ in nature) (Sojka & Giese, 1997, 2001).

As a consequence of the above there have been recommendations to match the advertising inclination to the attitude or processing style, i.e. use informational (cognition) advertising for “functional” products and emotional (affect) advertising for “feeling” products/initiatives. Yet it has been determined that individuals that are classified as ‘high’ in both dimensions prefer adverts that are both emotional *and* dense in information for them to process (Stathakopoulos, Theodorakis & Mastoridou, 2008), but individuals with a strong bias towards cognition or emotion respond better to adverts that are more suited to their individual bias (as described above). Such findings would suggest that attempting to appeal to the cognition disposition or emotional disposition can be as effective when addressed together as they are separately, depending on the individual. Such results indicate that the manner in which these two aspects are comprehended requires further attention.

2.2.4 Visual Persuasion and the Role of Advertising

It should be apparent that there are two important tenets ‘involved’ in consumption, i) the consumers’ disposition from a cognitive and an emotional/affect perspective and how that effects the interpretation of adverts (as described above), and ii) persuasive elements of the adverts themselves (in particular the visual elements) (which is described below).

Irrespective of whether one is appealing to an individual's cognition and/or emotion, designing and compiling adverts requires similar considerations. Decrop (2007, p 505) highlights that there are four major decisions to be considered when considering the approach, namely:

- i) content – “what to say”;
- ii) structure – “how to say it”;
- iii) format – “how to say it symbolically/rhetorically”, and
- iv) source – “who should say it”.

Further to this; when it comes to a print advert, the copywriter will consider some or all of the following elements: headline, visuals (imagery), subheading, body copy, captions, boxes and panels, slogans, logotypes/logos, seals and signatures (Decrop 2007, p506). The role of the copywriter is to manipulate these until a satisfying design is reached to best give effect to the intended message.

Broadly stated, a debate has ensued regarding the persuasive efforts of advertising and the varying roles of visual versus verbal elements used. As was the case with cognition versus emotion; visual versus verbal does not make one mutually exclusive of the other – instead there is some research which states that they work best together (see discussion to follow). In spite of this there is an overwhelming case made for the value of the visual elements over verbal elements in manipulating and persuading the consumer. Some key points from this debate are provided below.

2.2.4.1 Visual versus Verbal

The primary manner in which advertising information is presented to the consumer is via a visual format and/or a verbal format. There have been two distinct approaches to studying the effects of visual versus verbal elements in consumer

and advertising research (Kim & Lennon, 2008). One approach focused on the effects of these two formats of information on *memory*, and the other considers their effect on *consumer judgments or attitudes*.

Kim & Lennon (2008) indicate that the former maintains the idea that information portrayed by visual elements is superior to verbal elements in recall and recognition. The earliest ‘Starch-tests’¹ of the mid 1960s determined that people remembered a print advert with a picture better than one without a picture. Much research since this time has continued to demonstrate the superiority of visual information in advertising *recall* (e.g. Ang & Lim, 2006; Bu, Kim & Lee, 2009; Bulmer & Buchanan-Oliver, 2006; Clow, James, Kranenburg & Berry, 2009; Lurie & Mason, 2007; Tang, *et al.*, 2004). This research has demonstrated that pictures (visual communication) are more easily *memorized* than words and that there are varying levels of recall, such that recall “increases from abstract words, to concrete words, to pictures presented alone, to pictures-plus-verbalization” (Tang, *et al.*, 2004, p. 208).

In this regard Courtis (2004) highlights that the use of visuals for persuasive communication in advertising is powerful for two reasons; it helps “reconstruct reality” and through the use of symbols and other semiotic forms, helps to portray emotions such as “warmth, relaxation, danger, energy, purity and death” – both of which are engaging for the observer.

¹ Starch Tests refers to the research tool developed by Daniel Starch to test advertising effectiveness. The tool was one of the first tools developed for such research and is still used today.

In addition to the realism aspect of visuals, Bu, *et al.* (2009) highlighted a further factor to be associated with visuals is the fact that visuals tend to be scanned first when viewing the advert. It is only after the reader first looks at the visual, that they then read the headline, and finally, in the optimum case, read the body copy (Decrop, 2007). On this basis the content that is scanned first is best remembered.

With respect to the latter (i.e. consumer attitude to visual and verbal content) Brumberger (2007) highlights that visual thinking has often been considered “purely intuitive, unsystematic, non-rational, and sometimes even subconscious by those outside visually oriented disciplines”; whereas in contrast verbal thinking is thought of as “intellectual, systematic, rational, and analytical”. Moreover Martin, Sherrard & Wentzel (2005) and Sojka & Giese (2006) have demonstrated that individuals high in emotion (i.e. ‘feeling processors’) prefer visual elements in adverts to cognitive people (i.e. ‘thinking processors’), who themselves tend to prefer verbal elements. This would then infer that the efficacy of the content is not solely determined by the content and design of the advert but is determined by the disposition of the observer.

Accordingly the application of visuals in adverts makes up a large portion of communication about products, services and other non-commercial initiatives (e.g. awareness campaigns and cause-related campaigns). With specific reference to print advertising, visuals are used in a variety of ways, i.e. imagery, visual associations, drawings and paintings, models, visual memory devices, logos, brands, product and corporate symbols (An, 2007). Such visuals are used to create links with certain characteristics such as lifestyles, and in so doing help anchor the brand identity in the minds of the target audience. Broadly speaking this is achieved through the use of four key format components of print adverts (Decrop, 2007), i.e. the picture (visual), logo (signature), text (body copy) and slogan (headline) all of which have some visual characteristics to them, such as colour, location and size.

The relevance of these characteristics becomes evident when considered in the context of human visual skills; which according to Lurie & Mason (2007, p160) have evolved to enable humans to comprehend various visual elements and related characteristics such as: the ability to detect edges, changes in shapes and colours, see patterns and detect motion. Furthermore, visuals are not only relevant in terms of these rudimentary aspects (mentioned above) but have been used as a means by which to deal with complex issues and information overload. This is attained through presenting information in a manner that engages the use of the associative systems, in which meaning is ascribed through gestalt processes, such as visual recognition (Lurie & Mason, 2007). Hence visuals assist in the comprehension and learning of the subject at hand; add realism and credibility to advertising claims and in communicating simple declarative statements of product attributes and conveying information to facilitate decision-making (Bauer & Johnson-Laird, 1993; Engelhardt, 2007; Scott, 2008; Spatler & Van Dam, 2008; Tversky *et al.*, 2002), as would be the case for consumers.

From the above it is evident that while there are alleged separate connections between disposition type and content type, there is a body of evidence showing that advertising visuals do more than verbal elements with respect to observer attitude, and as a result, the “picture-superiority effect” theory has become more widely applied in the design of print advertising (Tang, *et al.*, 2004). Hence the argument for visual superiority is similar for *recall* of advertising content, as it is for *consumer attitude*.

Research by Stathakopoulos, *et al.* (2008, p631) supports this notion that visuals play a fundamental part in understanding complex issues; but they do highlight that there needs to be a ‘resonant’ interaction between the visual *and* the verbal component of an advert. Some contradictions remain, since while the argument for ‘resonance’ (referred to immediately above) would indicate that the efficacy of the visuals is only achieved through the inclusion of text (i.e. verbal content), other research findings provided above suggest that the use of verbal content is deemed

to be counter productive in engaging ‘feeling’ processors. Further still there are other contradictions to the pure visual-emotion argument. In this instance DeRosia (2008, p302), states that by their very nature the use of visual metaphors in adverts requires the observer to “fill in the gap” created by this rhetorical representation of the facts – a process in which the observer is required to expend some ‘cognitive effort’. In other words the visual elements of adverts require recipients to be actively trying to interpret the intended meaning over and above their emotional disposition created by the visual elements. However, DeRosia (2008) also highlights that such effort will only be exerted when the observer is motivated to do so.

On this basis it is necessary in the context of this research to gain some insights into visual rhetoric and its application in advertising. This is provided below.

2.2.4.2 Visual Rhetoric

As the preceding section has illustrated the use of certain visuals and symbols for the purposes of persuasion in advertising, may be conceptualized as visual rhetoric – i.e. the visuals being used for the purposes of communication over and above their typical aesthetic application. By its nature, rhetoric is more common in verbal language where presentation of an argument is manipulated in various ways to make an impact; it is also used in a visual format (Bulmer & Buchanan-Oliver, 2006).

The value of visual rhetoric arises from the fact that the intention to connect with a specific audience is not always achieved, due to information overload and that this can be overcome by presenting information in ways that engage the use of the associative system, in which “meaning is ascribed through gestalt and automatic processes, such as visual recognition” (Lurie, & Mason, 2007).

Generally rhetoric in particular metaphorical language and/or visuals entails transferring characteristics from a familiar subject to another less familiar subject to

bring about “understanding from the mastered subject to a new domain” (Eppler & Burkhard, 2007). Consequently the visual rhetoric is attempting to be persuasive. In this regard, Ang & Lim (2006) have in one study demonstrated 40% of adverts assessed to have superior effect of visual rhetoric (in particular metaphors) on attitude to an advert extending to attitude toward the advertised brand and purchase intention, thereby achieving the persuasion intended.

Visual persuasion is based on semiotics in which signs are classified into three broad categories: icon, index, and symbol (Messaris, 1997; Jeong, 2008). Where an ‘icon’ is a sign that denotes its object due to the similarity between the two, (the example given is a sculpture of Caesar is an iconic sign of Caesar); an ‘index’ is a sign that represents a signified object based on a association between the two, (the example given is smoke is an indexical sign of fire); and lastly, a ‘symbol’ is a sign that represents its object based on arbitrary convention, (the example given is the word “apple” is a symbolic sign of an apple).

Consequently visual images are more indexical and iconic than verbal words in that the visual image of an object is similar to the object it represents. As a result Jeong (2008, p60) states that visual images may lead to greater persuasion by eliciting emotional responses. Since visual metaphors without verbal messages may be an effective persuasion strategy, it is stated that global products of multinational corporations should consider creating uniform promotional communications across different countries using visual metaphors without verbal arguments. In essence visual communication would play a role in brand success by enabling marketers to visually communicate with potential consumers in geographically diverse markets.

Accordingly, as Bulmer & Buchanan-Oliver (2006) advocate, an analysis of (visual) rhetoric must consider how visuals work alone and together with other elements to create an argument designed to influence observers (such as consumers). These authors state (2006, p55) that “studying visual elements (in adverts) and noting

their incidence within particular contexts and mapping their relationships with similar or opposing themes, is a means of gaining insights into the motives of the communicator/persuader”. Yet they also state that while visual communication has been assumed to be inherently less ambiguous due to the universal nature of the concepts conveyed, the communication thereof is not necessarily universal. This stems from the fact that knowledge and familiarity of products and brands often stems from previous advertising, thereby undermining the intended meaning to be derived from the advert.

2.3 Secondary Market Influences of the Consumer: Advertising Interaction

“A simple mechanistic model of how advertising works might postulate that consumers see a commercial, this changes their perceptions of the brand (or creates a perception, if it is a new brand), and as a result they purchase the brand”.

Du Plessis (2008, p 6)

The consumptive practice of the dominant social paradigm of Western industrial societies is one that is “complicit in environmental decline” (Kilbourne & Carlson, 2008). The preceding sections have illustrated that efforts to date with regards to green advertising have had little traction in addressing this. The present research sets out to understand the factors utilised in for such purposes with particular attention being given to the role of visual elements.

In spite of the shortcomings of green advertising (both with respect to the ‘misleading’ advert content and varying receptivity of the market to adopt such green goods), the greater prevalence of such adverts in the media is irrefutable. Yet as was highlighted little is known about the relative persuasiveness of various appeals for different target audiences when specifically considering green advertising (Schuhwerk & Lefkoff-Hagius, 1995). What is known is the fact that there has been an increase in public concern for environmental issues over the

past three decades (Kim & Choi, 2005) and while consumers continue to purchase goods, producers need to respond to address their stakeholders in the most effective manner.

This would entail shifting and improving attitudes of consumers to environmental matters to encourage similar shifts in behaviour (Mostafa, 2006). Since behavioural research has established attitudes are important predictors of behaviour, a positive attitude toward a greener more sustainable way of living and representation thereof has been found to result in the purchasing and use of green products.

For this to happen effective means of communicating and enhancing public commitment to the green issue are required. Nicholson-Cole (2005) states that visualisation and the use of visuals have potential to facilitate this. The reason for this stems from the fact that one of the primary means people “encounter the natural environment” is through its inherent visual characteristics. In a similar vein Appleton and Lovett (2003) state that visual communication is an increasingly common part of environmental decision-making.

The efficacy of using visuals is further enhanced through the use of emotive (Nicholson-Cole, 2005) and rhetorical imagery (Bulmer & Buchanan-Oliver, 2006) that is able draw people’s attention and in certain instances motivate people to act. It is important to ensure that the nature of the images are not emotive to the extent that they trigger the ‘wrong’ emotional responses, but remain meaningful and motivating.

Further to this Sheppard (2006, p90) states that to truly influence the emotional viewer the following key attributes are required in the visuals used:

- Realism: The visual elements must be ‘lifelike’;
- Relevant: The visual elements must make sense to the observer (inclusive of known product type); and

- Immediacy: The visual elements must appear near-term.

Consequently it is on this basis that two secondary influential market factors also needed to be considered, namely: i) product type and ii) familiarity of brand, as is discussed below. There is a multitude of other factors that can be researched but for the purposes of this research the two listed above were considered to be key elements of any advert.

2.3.1 Product Type

The type of product used in the adverts to be researched is relevant, as it would need to be the type of product that would be purchased by observer of the advert. Ruiz & Sicilia (2004) indicate that there are advertising-planning models that recommend matching advertising appeal to attitude, which means the use rational and informational advertising for “thinking” or “functional” products and use emotional appeals for “feeling” or “transformational” products.

In addition, Ang & Lim (2006) indicate that broadly speaking products can be categorized as ‘symbolic’ or ‘utilitarian’. Symbolic products are purchased for gratification and enable consumers to express their persona. Consequently they create “emotional arousal”. On the other hand, utilitarian products have a more rational appeal, providing cognitive benefits.

Although the case for matching in terms of product type to attitude has been put forward, Sojka & Giese (2006) have indicated that additional research using different product categories is still required to ascertain the relationship between product categories and visual/verbal relations. The present research will consider different product categories to establish the extent to which this influences consumers and whether it warrants further research from an environmental perspective.

2.3.2 *Familiarity of Brand*

The second market factor to be considered is that of familiarity of brand. In this regard Brakus, Schmitt & Zarantonello (2009) indicate that product experiences develop when consumers interact with products - either through direct contact with the product or indirectly via an advert. Over time, exposure in this way creates long-lasting brand experiences, which are “stored in consumer memory, and affect consumer satisfaction and loyalty” (p. 53). This experience extends beyond product attributes, to include other specific brand-related stimuli, such as “brand-identifying colours, shapes, typefaces, etc.” - all of which make up the brand’s identity. The result is that these stimuli create “subjective, internal consumer responses, which are referred to as “brand experience” (p.53).

Furthermore Sojka & Giese (2006, p1004), state that certain global advertising campaigns (such as for branded clothing (e.g. Ralph Lauren), only use visuals such as pictures and/or the logo or brand name. In conjunction with this research by Bjerke, Rosendahl, Gopalakrishna & Sandler (2005) has also shown that “likeability” of an advert is associated with favourable attitudes toward the brand, and more likeable adverts have greater persuasive impact.

Consequently Pieters & Wedel (2004) indicate that some practitioners argue to maximize brand presence in an advert while others say minimise the brand element’s size in the advert.

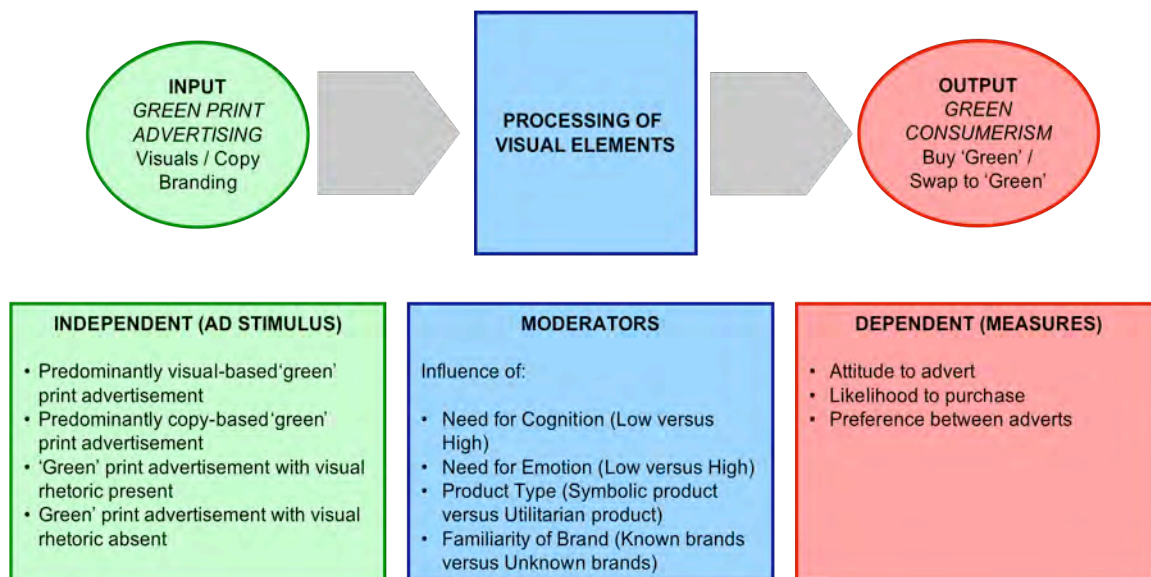
The first group say that the brand should be ‘prominently featured in print advertising’, as the focus should be first and foremost on identifying the brand. The reason for this is that captures attention, which is required to obtain desired communication effects. Those who are for minimising the brand in the advert make this case on the basis that consumers may not interested in the brand but rather in the product and its features.

The Pieters & Wedel (2004) and Brakus, Schmitt & Zarantonello (2009), amongst others, highlight that the relevance of brand is critical in advertising and that the aspect of brand is itself multifaceted. The present study does not attempt to address all these aspects relating to branding, but considers it to be a necessary inclusion in such research.

2.4 Conclusion

To conclude, the nature of the research being investigated (i.e. ‘how green is seen’) and literature on which it is based, is best summarised through an illustrated model (refer to Figure 4). Here it is being shown that for consumerism to be influenced (the ‘output’), attention has to be given to the ‘input’ message as well as the manner in which it is processed. This study sets out to understand this.

Figure 4: Proposed model of research to test ‘how green is seen’.



3 RESEARCH QUESTIONS

Green research can be consumer-based and/or advert-based (Shrum, McCarty & Lowrey, 1995, p72). The former investigates characteristics of *consumers* (specifically considering varying levels of environmental concern or behaviour), whereas the latter address elements of the *advert* themselves (such as visual, copy or layout elements).

The present study intends to specifically determine the impacts of visual elements in green print advertising. Consequently it is the latter that is being considered here; however the advert and the consumer are inexorably linked so certain consumer characteristics are also investigated in this study. This is evidenced in the research questions posed below and expanded upon in the description of the methodology in Chapter 4.

The following research questions have been investigated in this study:

3.1 Visuals versus Copy

Research Question 1: Will consumers have a different *attitude* towards predominantly visual green adverts (termed ‘Visual Present’) compared with green adverts that are predominantly copy-based (termed ‘Visual Absent’)?

Hypothesis 1: There is no difference in consumer attitudes towards an advert that is predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

$$H_0 : \mu_{attitude\ visual\ present} = \mu_{attitude\ visual\ absent}$$

$$H_1 : \mu_{attitude\ visual\ present} \neq \mu_{attitude\ visual\ absent}$$

Research Question 2: Will consumers demonstrate a different *likelihood to purchase* goods displayed in predominantly visual green adverts (termed ‘Visual Present’) compared with green adverts that are predominantly copy-based (termed ‘Visual Absent’)?

Hypothesis 2: There is no difference in consumer likelihood to purchase goods displayed in predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

$$H_0 : \mu_{\text{purchase visual present}} = \mu_{\text{purchase visual absent}}$$

$$H_1 : \mu_{\text{purchase visual present}} \neq \mu_{\text{purchase visual absent}}$$

Research Question 3: Will consumers demonstrate a difference in *preference* for predominantly visual green adverts compared with green adverts that are predominantly copy-based?

Hypothesis 3: There is no difference in consumer preference between a predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

$$H_0 : \mu_{\text{preference visual present}} = \mu_{\text{preference visual absent}}$$

$$H_1 : \mu_{\text{preference visual present}} \neq \mu_{\text{preference visual absent}}$$

This will be calculated separately for Questionnaire 1 (3i) and Questionnaire 2 (3ii).

3.2 Visuals Rhetoric

Research Question 4: Will consumers have a different *attitude* towards green adverts that use visual rhetoric (termed 'Rhetoric Present') compared with green adverts where the adverts' visuals are more 'descriptive' and visual rhetoric is not used (termed 'Rhetoric Absent')?

Hypothesis 4: There is no difference in consumer attitudes towards an advert that uses visual rhetoric (rhetoric present) to one that does not (rhetoric absent), i.e.:

$$H_0 : \mu_{attitude\ rhetoric\ present} = \mu_{attitude\ rhetoric\ absent}$$

$$H_1 : \mu_{attitude\ rhetoric\ present} \neq \mu_{attitude\ rhetoric\ absent}$$

This will be calculated separately for Questionnaire 1 (4i) and Questionnaire 2 (4ii).

Research Question 5: Will consumers demonstrate a different *likelihood to purchase* goods displayed in green adverts that use visual rhetoric compared with green adverts where visual rhetoric is not used?

Hypothesis 5: There is no difference in consumer likelihood to purchase goods displayed in an advert that uses visual rhetoric (rhetoric present) to one that does not (rhetoric absent), i.e.:

$$H_0 : \mu_{purchase\ rhetoric\ present} = \mu_{purchase\ rhetoric\ absent}$$

$$H_1 : \mu_{purchase\ rhetoric\ present} \neq \mu_{purchase\ rhetoric\ absent}$$

Research Question 6: Will consumers demonstrate a difference in *preference* for green adverts that use visual rhetoric compared with green adverts where visual rhetoric is not used?

Hypothesis 6: There is no difference in consumer preference between an advert that uses visual rhetoric (rhetoric present) to one that does not (rhetoric absent), i.e.:

$$H_0 : \mu_{\text{preference rhetoric present}} = \mu_{\text{preference rhetoric absent}}$$

$$H_1 : \mu_{\text{preference rhetoric present}} \neq \mu_{\text{preference rhetoric absent}}$$

This will be calculated separately for Questionnaire 1 (6i) and Questionnaire 2 (6ii).

3.3 Processing Style (i.e. NFC and NFE)

Research Question 7: Will consumer processing style (i.e. 'high' versus 'low' NFC and NFE) influence *attitude* towards predominantly visual green adverts (termed 'Visual Present') compared with green adverts that are predominantly copy-based (termed 'Visual Absent')?

Hypothesis 7: Consumer processing style has no difference on consumer attitudes towards an advert that is predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

i) *NFC*

$$H_0 : \mu_{\text{high NFC attitude visual present}} = \mu_{\text{low NFC attitude visual absent}}$$

$$H_1 : \mu_{\text{high NFC attitude visual present}} \neq \mu_{\text{low NFC attitude visual absent}}$$

ii) NFE

$$H_0 : \mu_{\text{high NFE attitude visual present}} = \mu_{\text{low NFE attitude visual absent}}$$

$$H_1 : \mu_{\text{high NFE attitude visual present}} \neq \mu_{\text{low NFE attitude visual absent}}$$

Research Question 8: Will consumer processing style (i.e. ‘high’ versus ‘low’ NFC and NFE) influence *likelihood to purchase* goods displayed in predominantly visual green adverts (termed ‘Visual Present’) compared with green adverts that are predominantly copy-based (termed ‘Visual Absent’)?

Hypothesis 8: Consumer processing style results in no difference in likelihood to purchase goods displayed in predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

i) NFC

$$H_0 : \mu_{\text{high NFC purchase visual present}} = \mu_{\text{low NFC purchase visual absent}}$$

$$H_1 : \mu_{\text{high NFC purchase visual present}} \neq \mu_{\text{low NFC purchase visual absent}}$$

ii) NFE

$$H_0 : \mu_{\text{high NFE purchase visual present}} = \mu_{\text{low NFE purchase visual absent}}$$

$$H_1 : \mu_{\text{high NFE purchase visual present}} \neq \mu_{\text{low NFE purchase visual absent}}$$

3.4 Product Type

Research Question 9: Will product type (i.e. ‘symbolic’ versus ‘utilitarian’) influence *attitude* towards predominantly visual green adverts (termed ‘Visual Present’) compared with green adverts that are predominantly copy-based (termed ‘Visual Absent’)?

Hypothesis 9: Product type has no difference on consumer attitudes towards an advert that is predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

$$H_0 : \mu_{\text{symbolic attitude visual present}} = \mu_{\text{utilitarian attitude visual absent}}$$

$$H_1 : \mu_{\text{symbolic attitude visual present}} \neq \mu_{\text{utilitarian attitude visual absent}}$$

Research Question 10: Will product type (i.e. ‘symbolic’ versus ‘utilitarian’) influence *likelihood to purchase* goods displayed in predominantly visual green adverts (termed ‘Visual Present’) compared with green adverts that are predominantly copy-based (termed ‘Visual Absent’)?

Hypothesis 10: Product type has no difference consumer likelihood to purchase goods displayed in predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

$$H_0 : \mu_{\text{symbolic purchase visual present}} = \mu_{\text{utilitarian purchase visual absent}}$$

$$H_1 : \mu_{\text{symbolic purchase visual present}} \neq \mu_{\text{utilitarian purchase visual absent}}$$

3.5 Familiarity of Brand

Research Question 11: Will familiarity of brand (i.e. ‘known’ versus ‘unknown’) influence *attitude* towards predominantly visual green adverts (termed ‘Visual Present’) compared with green adverts that are predominantly copy-based (termed ‘Visual Absent’)?

Hypothesis 11: Familiarity of brand causes no difference in consumer attitudes towards an advert that is predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

$$H_0 : \mu_{\text{known brand attitude visual present}} = \mu_{\text{unknown brand attitude visual absent}}$$

$$H_1 : \mu_{\text{known brand attitude visual present}} \neq \mu_{\text{unknown brand attitude visual absent}}$$

Research Question 12: Will familiarity of brand (i.e. ‘known’ versus ‘unknown’) influence *likelihood to purchase* goods displayed in predominantly visual green adverts (termed ‘Visual Present’) compared with green adverts that are predominantly copy-based (termed ‘Visual Absent’)?

Hypothesis 12: Familiarity of brand results in no difference in likelihood to purchase goods displayed in predominately visual relative (visual present) to one that is predominately copy-based (visual absent), i.e.:

$$H_0 : \mu_{\text{known brand purchase visual present}} = \mu_{\text{unknown brand purchase visual absent}}$$

$$H_1 : \mu_{\text{known brand purchase visual present}} \neq \mu_{\text{unknown brand purchase visual absent}}$$

4 RESEARCH DESIGN & METHOD

4.1 Introduction

This chapter describes the research method and design used to assess how the visual elements of 'green' print advertising is 'seen'. Although there is much research that has investigated the various characteristics of visual elements in print adverts as well as green adverts themselves, there is no research that has specifically considered visual elements in print advertising. Consequently an *experimental research design*; with a *quantitative research method* has been adopted for this research.

The details of this research design and method are contained within this chapter under the following headings: research approach; methodology; population of relevance; size and nature of sample size; sampling method; research instrument (i.e. questionnaires); data collection and data analysis. The chapter concludes with assumptions and limitations of the research.

4.2 Research Approach & Methodology

As described in Chapter 1, the aim of this research is to establish how the visual elements within a 'green' print advert are viewed. The purpose being to establish whether there is a discernable relationship between the manners in which the visual elements within print adverts are presented in various ways and how these various representations are viewed. This was tested by presenting a set of fictitious green adverts, and recording the viewers' responses to the adverts (on their own and in comparison to one another). For the purpose of this research, the data collection entailed conducting a quantitative methodology that utilized a self-completion web-based research survey.

To address the research questions posed in Chapter 3 the independent variables tested were:

- ‘green’ print adverts that have predominantly visual content in comparison to ‘green’ print adverts that have predominantly verbal (copy) content; and
- ‘green’ print adverts that use visual rhetoric (e.g. a visual metaphor) compared with adverts that do not use visual rhetoric (i.e. that may be considered more descriptive).

The dependent variables that were selected to evaluate the altered responses to the adverts were:

- Attitude toward the adverts provided;
- Likelihood to purchase goods presented in the advert; and
- Preference between the sets of adverts presented.

In accordance with the previous research done on visual advertising and green advertising several moderating variables were also measured, namely:

- Consumer processing predispositions, as measured through:
 - Cognition (i.e. degree of thoughtfulness)
 - Emotion (i.e. degree of feeling)
- Product type (‘symbolic’ (i.e. the car) versus ‘utilitarian’ (i.e. the light bulb))
- Brand (known versus fictitious)

The purpose of measuring the moderator variables was to establish whether the results obtained for the dependent variables are attributable to another factor (i.e. the moderator variable). As Zikmund (2006, p 479) states, “a moderator variable is

a third variable, that when introduced to the analysis, alters or has a contingent effect on the relationship between an independent variable and a dependent variable”.

The details of how these variables were used in the research instrument are described in detail in Section 4.5 below.

The research approach comprised the following stages:

- Perform literature review to establish research design and variables to be assessed (inclusive of scales to be used for dependent and moderator variables);
- Develop adverts for inclusion in the questionnaire (to create the experimental treatments to be tested);
- Draft a questionnaire using the information obtained in the literature review and the fictitious adverts;
- Pre-test the content and format of the draft questionnaire by exposing it to subject matter experts (i.e. advertising practitioners involved in media planning and brand strategy, a market research specialist and a statistician);
- Revise questionnaire and pre-test with a sample audience (utilising the *SurveyMonkey* web-based survey tool planned for use with the actual research assessment);
- Finalise questionnaire and post invitation to potential respondents to partake in the research;
- Collate and code data for analysis;
- Analyse data.

4.3 Population of Relevance

The population of relevance consisted of current and past business school students, in particular Masters of Business Administration (MBA) students, but also included students enrolled in the Postgraduate Diploma in Business Administration (PDBA) at the Gordon Institute of Business Science.

Business school students were selected due to the relative ease with which they could be contacted for the purpose of the research. Mostafa (2006) states that using students as subjects for research has been practiced for years, mainly due to the homogeneity of the group and their accessibility to the researcher. Further to this, research showed that students' responses to questions on environmental consciousness were similar to the general public (Synodinos, 1991 in Mostafa, 2006) and that typically socio-demographic characteristics are not of major importance in differentiating environmental attitudes and resulting behaviours (Tanner, Kaiser & Kast, 2004 in Mostafa, 2006).

4.4 Size and Nature of Sample

The sample used was a *non-probability convenience* sample (Zikmund, 2003). The sample selected was drawn from all members to the *MBAconnect* social networking website who are current or past MBA students as well as PDBA students who are presently enrolled at the Gordon Institute of Business Science (GIBS).

At the time of undertaking the research the *MBAconnect* network consisted of approximately 3,500 members from 300 business schools in 76 countries around the world. The PDBA group at GIBS consists of in excess of 100 students.

All members of the *MBAconnect* website and the GIBS PDBA were sent an electronic letter of invitation requesting them to partake in the research with an

option to click through to a questionnaire hosted on the *SurveyMonkey* tool. Voluntary responses to this request made up the sample for this study.

4.5 Research Instrument

As already established, a self-completion web-based survey was used as the research instrument. The questionnaire(s) used for the survey presented 'green' print adverts of two products (i.e. a hybrid vehicle and an energy efficient light bulb) in two combinations (i.e. a visual versus verbal combination and a visual rhetoric present versus visual rhetoric absent combination) and posed questions relating to the adverts presented.

The literature has highlighted that much of the focus of green advertising is not to curtail or stop consumption directly but rather to substitute products for more environmentally friendly alternatives. On this basis the adverts that were developed for this research were for typical goods that are purchased or have the potential to be purchased. The products selected were a motor vehicle and light bulb – the green characteristics were that the vehicle was a hybrid and the light bulb was an energy efficient alternative (refer to 4.5.3 for more details on the product types selected).

Further to this Sheppard (2006, p90) states that to truly influence the emotional viewer the following key attributes are required in the visuals used:

- Realism: The visual elements must be 'lifelike';
- Relevant: The visual elements must make sense to the observer (inclusive of known product type); and
- Immediacy: The visual elements must appear near-term.

In addition, to make the adverts more persuasive, Jeong (2008) recommends that the adverts contain metaphorical images, rather than literal visual images. The recommendations were heeded in developing the research instrument.

4.5.1 Visual vs. Verbal and Visual Rhetoric Present vs. Visual Rhetoric Absent

Based on the above recommendation it was decided that the adverts that will be developed for this research would not contain any overly emotive visual and/or verbal elements; resulting in the use of simple images, such as:

- A profile image of a current hybrid vehicle in a studio type setting for the purposes of creating a predominantly visually based;
- A vehicle parked in a lush green setting with ample space on the page for the inclusion of copy. This advert would be for the purposes of creating a predominantly verbal advert;
- A 'portrait' type image of a light bulb subtly set in a green environment for the purposes of a predominantly factual visual advert;
- A rhetorical image that portrays the light bulb in an environmentally-friendly manner (i.e. the bulb is like a flower). This advert would be for the purposes of creating a visual rhetoric advert;

The copy that was included was kept simple and factual and devoid of over emotional messages.

4.5.2 Emotion and Cognition

If environmental issues are considered to be 'emotional' (Nicholson-Cole, 2005, p260); would there not be a stronger relation with the emotion of the consumer than to their cognition; suggesting that the visual elements of green adverts by their very nature should be more influential to consumer behaviour? By implication, adverts that are predominantly verbal would have a reduced influence on

individuals with high emotions, and predominantly visual adverts would have a reduced influence on individuals with high cognition.

Given the above there was a need to structure the research to determine the individuals state – i.e. emotional and/or cognitive. For this purpose, the following two scales were identified for use in the research:

- Need for Cognition (18 point scale)
- Needs for Emotion (12 point scale)

4.5.3 Product type

Further details on the products selected for the adverts entailed:

- A hybrid motor vehicle: which was considered to be ‘symbolic’ with emotional appeal – i.e. a feeling product as per Ruiz definition.
- An energy efficient light bulb: which was considered to be ‘utilitarian’ with rational appeal – i.e. a thinking product as per Ruiz definition.

These two products accommodated for Sojka & Giese’s (2006) suggestion that combination of the two distinct product types be used.

4.5.4 Familiarity of Brand

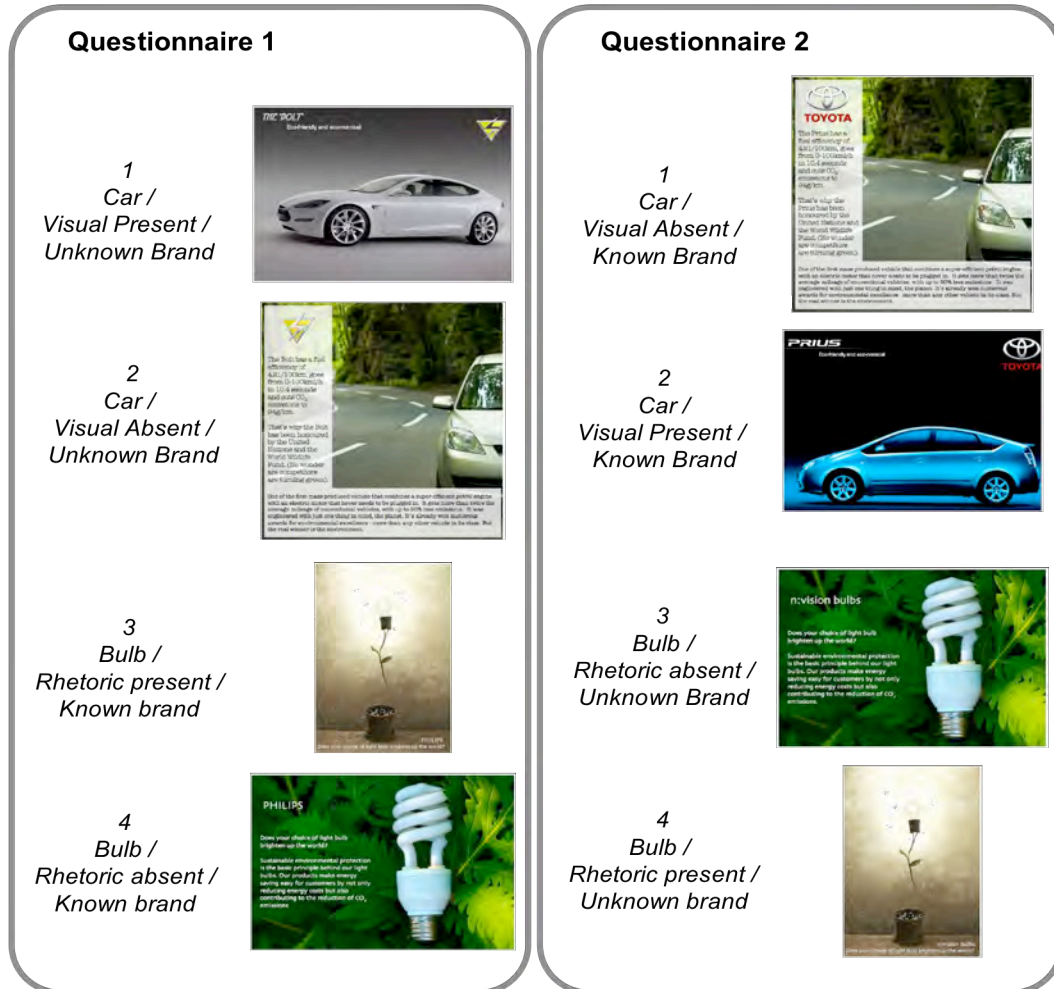
Certain of the adverts tested primarily comprised images of the product and the brand logotype with a minor amount of text. There were adverts with well-known brands (e.g. ‘Toyota’ for the vehicle and ‘Philips’ for the light bulb) and identical copies using fictitious brands (e.g. ‘Bolt’ for the vehicle and ‘n:vision’ for the bulb). The intention of the two adverts for each product was to determine whether the response obtained from the advert would result from the use of visual elements or be the result of ‘brand experience’.

The inclusion of the brand moderator variable required two questionnaires to be used in the survey, as illustrated in Figure 5 below. Although not shown in the figure below, both questionnaires included the scales to measure cognition and emotion prior to the adverts being shown. Scales to measure attitude towards the advert and the likelihood to purchase the goods accompanied each advert that was shown. An additional question requesting preference between adverts was also included (i.e. between 1 and 2 for the vehicle adverts and 3 and 4 for the bulb adverts). The full questionnaires are presented in Appendix 1.

Figure 5 shows that Questionnaire 1 had a fictitious/unknown brand hybrid vehicle (i.e. the '*Bolt*') but a known brand of light bulbs (i.e. *Philips*); whereas Questionnaire 2 had a known hybrid vehicle (i.e. the '*Prius*') and a fictitious/ unknown brand of light bulbs (i.e. *n:vision*). With the exception of changing the brand names, the copy used in the corresponding adverts was identical (i.e. the specifications for the '*Bolt*' are identical for the '*Prius*', having been taken from an actual advert for the '*Prius*').

To prevent instrumentation effects (Zikmund, 2003) and to control for extraneous sources of stylistic variation (McQuarrie & Mick, 2003), the layout and copy of the two questionnaires was kept identical. Furthermore, the sequence of the adverts was altered between the questionnaires to minimise ordering effect (Zikmund, 2003).

Figure 5: Schematic representation of the two questionnaires used for this research (coding displayed).



4.5.5 Pre-testing and Design Considerations

The questionnaires and adverts used as stimulus material (independent variables) draw on research designs as used by Jeong (2008), and Stathakopoulos, *et al.* (2008). Whereas these researchers used ‘well-known’ local and global adverts, the global distribution of the sample population used in this research would make it

difficult to find appropriate actual known adverts. On this basis all adverts used in the questionnaires were created specifically for this research.

Although the adverts were specifically created, there was a need to make use of globally recognisable brands for the purpose of assessing effects of brand. Consequently the *Prius* (a Toyota brand) and *Philips* were selected as global brands for use in the research. The fictitious brands used (i.e. the '*Bolt*' hybrid vehicle and '*n:vision*' light bulbs) were established through discussion with subject matter experts and assessed with a small test sample.

To develop the fabricated adverts, criteria identified by Kärnä, et al. (2001) that demonstrates environmental friendliness of an organisation or brand were considered for inclusion, namely:

- The use of green colour – i.e. foliage shown in several of the adverts;
- Images of nature (real and contrived) – i.e. plants shown in several of the adverts;
- Eco-labels or green brands – i.e. the use of the 'Prius' brand;
- Statements of environmental friendliness – i.e. as documented in the copy used;
- Emphasis of renewable raw materials – i.e. as documented in the copy used;
- Environmentally friendly production processes – i.e. as documented in the copy used; and
- Ability to be recycled – i.e. as documented in the copy used.

Additional considerations in developing the adverts related to the visual rhetoric advert, for which McQuarrie & Phillips (2005) recommend using only a single image and placing of text at the bottom of the advert.

The graphics used in the adverts were sourced from various Internet sources and manipulated with the assistance of a graphic artist to minimise the potential impacts of poor quality graphics (Desanctis & Jarvenpaa, 1989).

Pre-testing of content and format of the questionnaire was informed by recommendations obtained during interviews with subject matter experts (from the advertising and communication field as well as a marketing research design expert and statistician) and piloting of the questionnaire to ensure that it was easily understood and not too long.

It was initially intended that the two separate questionnaires would be randomly allocated or purposely alternated in equal proportions as respondents 'clicked-through' to the web-based tool. It was established however, that neither the *MBAconnect* network nor the *SurveyMonkey* tool was able to accommodate either of these options. Consequently the approach adopted was to allocate the questionnaires on the basis of the respondents surname; i.e. Questionnaire 1 allocated to respondents with a surname beginning with the letter 'A' to 'M' and Questionnaire 2 allocated to respondents with a surname beginning with the letter 'N' to 'Z'. In this manner a forced division of the sample population would enable the collection of statistically suitable sample sizes for each of the questionnaires.

4.5.6 Operationalisation of Variables

Zikmund (2003, p 300) states that the three main considerations of measurement are *reliability*, *validity* and *sensitivity*. The variables to be measured and the scales that are used to measure them have been selected to meet these three criteria. Associated relevant results are included in Section 5.

A further aspect that was considered in selecting the variables to be measured and the manner in which they were measured was simplicity of the measures to be used. Leedy & Ormrod (2005) recommend that when a questionnaire is used for research it should be concise, consistent, and unambiguous to ensure that the respondents' task is kept simple.

There are numerous measures, indexes and constructs that have been used for analysing adverts from recall to recognition, ad liking to attitude toward the ad, but each of these continually 'fall in and out of favour in the marketing community' (Braun-LaTour & LaTour, 2005). Since the dual-mediation model has been widely used to explain consumer attitudes toward an advert; attitudes to a brand, as well as the formation of purchase intention (Teng, Laroche & Zhu, 2007) it will be used will be used. However the measure of attitude toward the brand is not used for this research; instead familiarity of brand will be considered.

Consequently there are not necessarily industry standard measures that should be used. In spite of this, relatively common or frequently used measures were selected for this research. These are presented in the table below.

To create the sensitivity alluded to above, all measures (with the exception of preference which is an either or measure) were rated on a 7-point scale (refer to questionnaire in Appendix 1).

Note: For statistical purposes all the multiple item scales were averaged (as per the approach of Ruiz & Sicilia, 2004), i.e. the average per item was calculated as opposed to the total score obtained.

Table 1: Measures used in this research.

Variable	Means of measurement	Reference
Dependent Variables		
Attitude to advert	<p>Four semantic differential items:</p> <ul style="list-style-type: none"> • Bad - Good, • Unfavourable - Favourable, • Unpleasant - Pleasant, and • Unappealing - Appealing. <p>The response options were on a 7-point scale. A sum of the results for the four items provided a score for attitude to the advert.</p>	<p>Ruiz & Sicilia (2004). Jeong, S. (2008). Kim, M. & Lennon, S. (2008).</p>
Likelihood to purchase	<p>Three semantic differential items:</p> <ul style="list-style-type: none"> • Unlikely - Likely, • Improbable - Probable, and • Impossible – Possible. <p>The response options were on a 7-point scale. A sum of the results for the three items provided a score for likelihood to purchase.</p>	<p>Ruiz & Sicilia (2004) Zhang & Buda, 1999</p>
Preference	Nomination of one advert over the other to demonstrate preference (ad liking)	
Moderator Variables		
Cognition	<p>18-item 'Need for Cognition' Scale (NFC) 7 point Likert-type scale (refer to Appendix 2).</p> <p><i>Note: The original NFC scale was a 34-item scale but there is a strong correlation with the shorter form and so the shorter form was used to simplify the questionnaire.</i></p>	<p>Cacioppo, Petty, & Kao (1984). Sojka & Giese (2006).</p>

Variable	Means of measurement	Reference
Affect / Emotion	12-item 'Need for Emotion' Scale (NFE) 7 point Likert-type scale (refer to Appendix 3)	Raman, <i>et al.</i> (1995).
Product type	This variable was defined and not assessed in accordance with any scale. The two products used were the hybrid car (i.e. a symbolic product) and the energy efficient light bulb (i.e. a utilitarian product)	Ang & Lim (2006)
Familiarity of brand	This variable was defined and not assessed in accordance with any scale. Two globally recognised brands (i.e. 'Toyota' and 'Philips') and two fictitious brands (i.e. 'Bolt' and 'n:vision') were used	Bjerke, Rosendahl, Gopalakrishna & Sandler (2005)

4.5.7 Application of Instrument

When answering the questionnaires, respondents completed the batches of questions that constitute the Need for Cognition (NFC) and Need for Emotion (NFE) scales respectively. It was intended that these scales be completed prior to the adverts are viewed to ensure that the content of the adverts did not influence the response.

Following this, the respondents viewed the experimental adverts and answered two sets of questions that measured attitude to the advert and the likelihood to purchase respectively. These sets of questions were repeated for each of the four adverts assessed (i.e. view advert 1, then complete questions relating to attitude and likelihood to purchase, then repeat process for advert 2 onwards). For each set of adverts that were tested, an additional question related to preference was asked (i.e. once advert 1 and advert 2 had been viewed, the preferred advert was to be nominated, and the same process followed between advert 3 and 4).

Each advert was rated before moving to the next advert. No time restrictions were imposed on the viewing of the advert.

4.6 Data Collection

As stated above data collection was based on voluntary response to the letter of invitation circulated to the group of potential respondents. The group was given four weeks to respond after which the survey would be closed and the web-based survey tool would capture no further responses.

Since the survey was a web-based self-assessment and designed to be anonymous with no facility to record respondents contact particulars, there was no means of directed follow-up correspondence to the potential respondents or those that had started the questionnaire but not completed it. In addition, neither the *MBAconnect* network nor the administration at GIBS were willing to post follow-up reminders – this was primarily to avoid irritating the respondents through repeated correspondence and to minimise research fatigue of the sample population.

The following functionality of the *SurveyMonkey* tool assisted the data collection process:

- Access to the questionnaire(s) was via a simple web-link in the letter of invitation and meant that there was no restriction imposed on respondents.
- The survey was configured to enable multiple responses from a shared environment such as a computer lab (e.g. GIBS Information Centre), to accommodate for respondents who have no or limited access to computers and the Internet.
- The tool can capture multiple responses simultaneously.
- The tool has filtering and cross-tabulation functionality to facilitate data analysis (refer to Section 4.7). This enabled incomplete questionnaires to be

excluded from the analysis. However for the statistical analysis undertaken, the SAS statistical package has inherent functionality that addresses missing data.

4.7 Data Analysis

Various types of data analysis were undertaken as described in sequence below.

4.7.1 Descriptive Statistics

Descriptive statistics of the sample population (i.e. number of respondents, gender and regional location of respondent) were calculated for the two questionnaires, so as to enable interpretation, ordering and manipulation of data for analysis. These statistics are presented in Section 5.1.

4.7.2 Reliability of Scales

The consistency of the questionnaires used for the research is assessed through measuring the reliability of the scales (e.g. NFC). The most common measure used for this purpose is the Cronbach's alpha coefficient (Cronbach's α).

The range of the alpha is from 0 to 1. As a rule of thumb the alpha of a scale equal to 0.65 or greater is considered acceptable for items to be reliable.

Note: The alpha for the total scale is computed, and then recalculated with each contributing item to the scale being. If the alpha increases significantly with the deletion of the item, to a value substantially greater than that calculated for the total, then the rule of thumb is to remove that item from scale for the purpose of the analysis.

4.7.3 Inferential Statistics

To test the within sample and between sample hypotheses posed in Section 3, t-tests were used because the test assesses whether the means of two groups are statistically different from each other (Albright, Winston & Zappe, 2006). Furthermore this parametric statistic can be used because there are 2 sub groups being analysed, with each group of a suitable size (i.e. $n > 30$). The analysis and results of these t-tests was performed in the SAS statistical computer package.

For the assessment of the preference scores (i.e. Hypothesis 3 and Hypothesis 6) χ^2 (chi-squared) tests were carried out to compare the actual findings with expected findings.

The level of significance used was $\alpha = 0.05$ (i.e. 5% level).

4.8 Limitations

The following aspects are limitations to this study:

- Although research has indicated the suitability of a student sample for research purposes (Mostafa, 2006) the generalisations of the study may be undermined by the use of a homogenous student sample.
- The manner in which the adverts were viewed in the questionnaire may have created testing effects because of the inordinate amount of attention compared to normal observation (i.e. much shorter, or much longer and only once off).
- The relatively small sample used for the pre-testing of the fictitious adverts may have been inadequate to establish neutrality with respect to the issues to be assessed.

- Although every effort was made to select universally known brands, the familiarity of the actual brands (i.e. *Toyota*, *Prius* and *Philips*) selected for the research may vary between research respondents, which may bias their response to the questionnaire and may have resulted in auspice bias (Zikmund, 2006).
- Although made-up/fictitious adverts were used for the research, known brands needed to be used to test the effect of brand as a moderator variable; and consequently such brands run the risk of corporation recognition and attitude bias (refer Sojka & Giese, 2006).
- An unintended consequence of the questionnaire design (even after pre-testing) resulted in statistical analysis of product type not being possible to determine due to different aspects being assessed – i.e. the car adverts dealt with the presence and absence of visuals and the bulb adverts dealt with the presence and absence of visual rhetoric. Consequently the influence of product type as a moderating variable could not be statically assessed in this research.
- The MBA sample assessed originated from a number of countries around the world. Yet whereas pictures may be universal, visual language may vary between cultures (Callow & Schiffman, 2004).
- Brand personality perceptions may differ by product type, such as symbolic or utilitarian (Ang & Lim, 2006). The adverts for the two goods that were used in the research (i.e. the hybrid car and the energy efficient light-bulb) were intended to represent various green goods (real and fictitious) but had not been used for the purposes of investigating the effects of product type.

4.9 Conclusion

This chapter has described how the research methodology was designed and implemented and the process by which the data was collected and analysed. Due to the exploratory nature of the study an experimental approach was adopted, and structured around a self-completion web-based research survey. Varying experimental treatments were provided in the survey and a number of dependent variables and moderator variables were measured to ascertain the impact of these experimental treatments. The results of this assessment are provided in the chapter that follows.

5 RESULTS

This chapter sets out the results obtained from the research undertaken. The format in which these statistics are presented is as follows:

- Introduction and Sample Description;
- Scale Reliability;
- Descriptive Statistics, Propositions and hypotheses.

5.1 Introduction & Sample Description

In accordance with the experiment's design two groups of respondents completed the two questionnaires posted on the *Survey Monkey* website. The intention of the design was to obtain approximately similar sized samples to allow for between samples analyses. The demographics of the respondents are presented in Table 2.

Table 2: Demographics of respondents who were involved in the research.

DEMOGRAPHICS		QUESTIONNAIRE 1		QUESTIONNAIRE 2		COMBINED	
		Count	%	Count	%	Count	%
Respondents	Total	78	100	57	100	135	100
	Completed	72	92.3	52	91.2	115	91.9
Gender	Male	55	70.0	38	67.0	93	69.0
	Female	23	30.0	19	33.0	42	31.0
Region	South Africa	64	82.0	49	86.0	113	83.5
	Rest Africa	4	5.0	1	1.8	5	3.5
	Middle East	3	4.0	0	0.0	3	2.5
	Europe	2	2.5	2	3.5	4	3.0
	Asia-Pacific	3	4.0	5	8.8	8	6.0
	N. America	2	2.5	0	0.0	2	1.5
	S. America	0	0.0	0	0.0	0	0.0

The demographics indicate that there were a total of 135 respondents, with a higher response rate to Questionnaire 1 with 78 respondents compared with 57 for questionnaire 2. The number of respondents that completed the questionnaire were approximately 92% across both questionnaires. For both questionnaires there was at least twice as many men as there were women who undertook the study. The vast majority (>80%) of the respondents were from South Africa, and the next largest representation came from the Asia-Pacific region (in particular India).

5.2 Scale Reliability

With the exception of preference between adverts, all of the construct measures used in this research are based on multi-item scales chosen because they have been used previously and have demonstrated acceptable reliability and validity.

The reliability, measured by the Cronbach's α , is presented in Table 3 below for Questionnaire 1 and in Table 4 for Questionnaire 2.

Table 3: Reliability measures for scales used in Questionnaire 1.

Variable	Measure	Cronbach's α ^a	No. of items ^b
Need for Cognition		0.79	18
Need for Emotion		0.88	12
Car / unknown brand / visual present	Attitude to advert	0.90	4
	Likelihood to purchase	0.90	3
Car / unknown brand / visual absent	Attitude to advert	0.89	4
	Likelihood to purchase	0.94	3
Bulb / known brand / rhetoric present	Attitude to advert	0.97	4
	Likelihood to purchase	0.96	3
Bulb / known brand / rhetoric absent	Attitude to advert	0.96	4
	Likelihood to purchase	0.97	3

^{a b} - Deletion of any of the scales' contributing items did not is major changes to the Cronbach's α measure

Table 4: Reliability measures for scales used in Questionnaire 2.

Variable	Measure	Cronbach's α ^a	No. of items ^b
Need for Cognition		0.79	18
Need for Emotion		0.91	12
Car / known brand / visual absent	Attitude to advert	0.97	4
	Likelihood to purchase	0.91	3
Car / known brand / visual present	Attitude to advert	0.94	4
	Likelihood to purchase	0.92	3
Bulb / unknown brand / rhetoric absent	Attitude to advert	0.98	4
	Likelihood to purchase	0.98	3
Bulb / unknown brand / rhetoric present	Attitude to advert	0.96	4
	Likelihood to purchase	0.97	3

^{a b} - Deletion of any of the scales' contributing items did not is major changes to the Cronbach's α measure

The Cronbach's α for all scales (and the items they are comprised of) were above the suggested limit of 0.65. As the footnotes to each of the tables indicate, the deletion of individual items did not significantly alter the reliability scores of the scales. In most instances the overall score was the highest.

Given these results the scales were used in their original format for the purposes of analysing the research questions and hypotheses (refer to Section 5.3).

5.3 Descriptive Statistics

As stated previously all the multiple item scales were averaged (as per the approach of Ruiz & Sicilia, 2004), i.e. the average per item was calculated. Descriptive statistics presenting the combined scores (i.e. for the sum of all contributing items of each scale) are presented in Table 21 and Table 22 in Appendix 4 of this document.

For NFC and NFE it was initially determined that tripartite partitioning could be used to help classify the sample (i.e. high, moderate and low). However, the

option of the tripartite partitioning as well as quartile splits was abandoned, as they would create too small a cell size for meaningful statistical analysis. Instead, in keeping with the Sojke & Giese model (1997 – see also Figure 3) the sample was split into ‘low’ and ‘high’ based on the midpoint of the respective potential ranges.

5.3.1 Descriptive Statistics: Processing style

Questions 1 and 2 of both questionnaires comprised the same questions (refer to Appendix 1); i.e. the 18 item Need for Cognition (NFC) Scale and the 12 item Need for Emotion (NFE) Scale. The results are shown in Table 5 and Table 6 below and provide an indication of the processing style of the respondents.

Table 5: Processing style classification for Questionnaire 1.

Need for Emotion (NFE) <i>(n = 78 / $\mu^a = 3.85 / \sigma = 1.07$)</i>	High	<i>FEELING</i> <i>n = 1</i> <i>% = 1.3</i>	<i>COMBINATION</i> <i>n = 38</i> <i>% = 48.7</i>
	Low	<i>PASSIVE</i> <i>n = 0</i> <i>% = 0.0</i>	<i>THINKING</i> <i>n = 39</i> <i>% = 50.0</i>
		Low	High
		Need for Cognition (NFC) <i>(n = 78 / $\mu^a = 4.08 / \sigma = 0.39$)</i>	

^a - multiple item averages (i.e. average Likert scale score between 1 - 7)

For Questionnaire 1 the results indicate that the mean score for NFC and NFE was 4.8 and 3.85 respectively, with a standard deviation of 0.39 and 1.07.

According to the four-quadrant classification, the majority of respondents in Questionnaire 1 were ‘Thinking’ people (50%), followed by ‘Combined’ (48.7%). There was limited representation for both quadrants that have low cognition, namely ‘Passive’ and ‘Feeling’, with only one respondent classified as ‘Feeling’ – i.e. the data is heavily skewed towards the ‘high’ category of NFC.

Table 6: Processing style classification for Questionnaire 2.

Need for Emotion (NFE) <i>(n = 57 / $\mu^a = 3.63 / \sigma = 1.14$)</i>	High	<i>FEELING</i> <i>n = 0</i> <i>% = 0.0</i>	<i>COMBINATION</i> <i>n = 23</i> <i>% = 40.35</i>
	Low	<i>PASSIVE</i> <i>n = 1</i> <i>% = 1.75</i>	<i>THINKING</i> <i>n = 33</i> <i>% = 58.9</i>
		Low	High
Need for Cognition (NFC) <i>(n = 57 / $\mu^a = 4.12 / \sigma = 0.31$)</i>			

^a - multiple item averages (i.e. average Likert scale score between 1 - 7)

For Questionnaire 2 the results indicate that the mean score for NFC and NFE was 4.12 and 3.63 respectively, with a standard deviation of 0.31 and 1.14.

According to the four-quadrant classification, the majority of respondents in Questionnaire 2 were ‘Thinking’ people (58.9%), followed by ‘Combined’ (40.35%). There was limited representation for both quadrants that have low cognition, namely ‘Passive’ and ‘Feeling’, with only one respondent classified as ‘Passive’ - i.e. the data is heavily skewed towards the ‘high’ category of NFC.

5.3.2 Descriptive Statistics: Attitude to Advert

The average scores for the attitude toward the advert scale for Questionnaire 1 and Questionnaire 2 is presented in Table 7 and

Table 8 respectively.

Both sets of results indicate that the general consensus of attitude toward the advert (as shown by the mean) was positive – i.e. on the ‘agree’ portion of the Likert scales.

With respect to the results for Questionnaire 1 (i.e. Table 7) there is an indication for Adverts 1 and 2 that there is a slightly higher average score for the car advert (unknown brand) where the Visual Present (i.e. mean = 5.03) compared with the advert where the Visual Absent (i.e. the advert is predominant verbal or copy based as defined in the experimental design) (i.e. mean = 4.95).

With respect to Advert 3 and 4 the advert with the Rhetoric Present had a lower mean (i.e. mean = 5.00) than with the Rhetoric Absent (i.e. with more 'descriptive' visuals)(i.e. mean = 5.27)

Table 7: Descriptive statistics relating to *attitude toward the advert* for adverts presented in Questionnaire 1. (Shaded row highlights advert with the highest score of the pair assessed)

#	ADVERT		STATISTICS		
	Description	μ^a	σ	Min	Max
1	Car / unknown brand / visual present	5.03	1.23	2.00	7.00
2	Car / unknown brand / visual absent	4.95	1.28	1.00	7.00
3	Bulb / known brand / rhetoric present	5.00	1.72	1.00	7.00
4	Bulb / known brand / rhetoric absent	5.27	1.58	1.00	7.00

^a - multiple item averages (i.e. average Likert scale score between 1 - 7)

Table 8: Descriptive statistics relating to *attitude toward the advert* for adverts presented in Questionnaire 2. (Shaded row highlights advert with the highest score of the pair assessed)

#	ADVERT		STATISTICS		
	Description	μ^a	σ	Min	Max
2 ^b	Car / known brand / visual present	5.47	1.45	1.00	7.00
1	Car / known brand / visual absent	4.87	1.82	1.00	7.00
4	Bulb / unknown brand / rhetoric present	4.59	1.91	1.00	7.00
3	Bulb / unknown brand / rhetoric absent	5.49	1.48	1.00	7.00

^a - multiple item averages (i.e. average Likert scale score between 1 - 7)

^b – to aid comparison between questionnaires the adverts have been ordered according to description in which case the advert sequence has been altered.

With respect to the results for Questionnaire 2 (i.e.

Table 8), as was the case in Questionnaire 1, in the paring of Adverts 1 and 2 there is a slightly higher average score for the car advert (known brand) with Visual Present (i.e. mean = 5.47) compared with the advert with Visual Absent (i.e. the advert is predominant verbal or copy based as defined in the experimental design) (i.e. mean = 4.87).

As in Questionnaire 1, the results obtained for Advert 3 and 4, show the Visual Rhetoric Present (unknown brand) has a lower mean (i.e. mean = 4.59) than with the Visual Rhetoric Absent (i.e. with more ‘descriptive’ visuals)(i.e. mean = 5.49). The ranges for all adverts (with the exception of “car / unknown brand / visual present”) cover the whole Likert Scale from ‘1’ to ‘7’.

5.3.3 Descriptive Statistics: Likelihood to Purchase

The average scores for the *likelihood to purchase* scale for Questionnaire 1 and Questionnaire 2 are presented in Table 9 and Table 10 respectively.

As with *attitude to the advert*, both sets of results indicate that the general consensus of *likelihood to purchase* (as shown by the mean) was positive – i.e. on the ‘agree’ portion of the Likert scales. Although the scores for *likelihood to purchase* are slightly lower.

Table 9: Descriptive statistics relating to *likelihood to purchase* good shown in adverts presented in Questionnaire 1. (Shaded row highlights advert with the highest score of the pair assessed)

ADVERT		STATISTICS			
#	Description	μ^a	σ	Min	Max

1	Car / unknown brand / visual present	3.55	1.72	1.00	7.00
2	Car / unknown brand / visual absent	4.06	1.82	1.00	7.00
3	Bulb / known brand / rhetoric present	4.17	0.74	1.67	6.00
4	Bulb / known brand / rhetoric absent	4.99	1.81	1.00	7.00

^a - multiple item averages (i.e. average Likert scale score between 1 - 7)

With respect to the results for Questionnaire 1 (i.e. Table 9) there is an indication for adverts 1 and 2 that there is a slightly higher average score for the car advert (unknown brand) with Visual Absent (i.e. mean = 4.06) compared with the advert with Visual Present (i.e. mean = 3.55).

As for Advert 1 and 2, the relative scores for Advert 3 and 4 are reversed. The advert with the Visual Rhetoric Absent has a substantially higher mean (i.e. mean = 5.66) than with the Visual Rhetoric Present (i.e. mean = 4.62)

Table 10: Descriptive statistics relating to *likelihood to purchase good/s* shown in adverts presented in Questionnaire 2. (Shaded row highlights advert with the highest score of the pair assessed)

#	ADVERT		STATISTICS			
	Description	μ^a	σ	Min	Max	
2 ^b	Car / known brand / visual present	4.55	1.71	1.00	7.00	
1	Car / known brand / visual absent	3.99	1.79	1.00	7.00	
4	Bulb / unknown brand / rhetoric present	4.62	2.03	1.00	7.00	
3	Bulb / unknown brand / rhetoric absent	5.66	1.47	1.00	7.00	

^a - multiple item averages (i.e. average Likert scale score between 1 - 7)

^b - to aid comparison between questionnaires the adverts have been ordered according to description in which case the advert sequence has been altered.

The ranges for all adverts (with the exception of “bulb / known brand / rhetoric present”) cover the whole Likert Scale from ‘1’ to ‘7’.

5.3.4 Descriptive Statistics: Preference

In addition to *attitude to advert* and *likelihood to purchase* the product shown a straightforward measure of advert preference was also measured. The frequency scores for the preferences between the advert pairings (i.e. Advert 1 with 2 for the car and Advert 3 with 4 for the bulb) for Questionnaire 1 and Questionnaire 2 are presented in Table 11 and Table 12 respectively.

Table 11: Advert preference for Questionnaire 1 (shaded row highlights preferred advert of the pair assessed).

#	ADVERT		STATISTICS			
	Description	Count	%	χ^2	D.F	Pr > t
1	Car / unknown brand / visual present	26	36.1	5.556	1	0.018*
2	Car / unknown brand / visual absent	46	63.9			
3	Bulb / known brand / rhetoric present	25	35.2	6.211	1	0.013*
4	Bulb / known brand / rhetoric absent	46	64.8			

* - This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

The results from Questionnaire 1 indicate that there is a far greater preference for the adverts with the influencing aspect removed, i.e. Visual Absent in the ‘car unknown’ advert (Advert 2) and Visual Rhetoric Absent in the ‘bulb known’ advert (Advert 4). The results of the χ^2 analysis indicate that this difference in preference is statistically significant ($\alpha = 0.05$ or greater). Thus for Hypothesis 3i and 6i: reject H_0 in favour of H_1 .

Table 12: Advert preference for Questionnaire 2 (shaded row highlights preferred advert of the pair assessed).

#	ADVERT		STATISTICS			
	Description	Count	%	χ^2	D.F	Pr > t
2 ^a	Car / known brand / visual present	30	57.7	1.231	1	0.267
1	Car / known brand / visual absent	22	42.3			

4	Bulb / unknown brand / rhetoric present	19	36.5	3.769	1	0.052
3	Bulb / unknown brand / rhetoric absent	33	63.5			

* - This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

^a – to aid comparison between questionnaires the adverts have been ordered according to description in which case the advert sequence has been altered.

For Questionnaire 2 there was a preference for Visual Present in the ‘car known’ advert (Advert 2). However for the ‘bulb unknown’ adverts the advert with Visual Rhetoric Absent (Advert 3) was preferred. The results of the χ^2 analysis indicate that this difference in preference is not statistically significant. Thus for Hypothesis 3ii and 6ii: do not reject H_0 .

5.3.5 Descriptive Statistics: Summary

With regard to processing style, the vast majority of the respondents scored ‘high’ in terms of NFC, but were relatively evenly spread between ‘low’ and ‘high’ NFE.

For *attitude towards the advert* the highest scoring adverts in Questionnaire 1 were for the car advert with the Visual Present (i.e. Advert 1) and bulb advert with Visual Rhetoric Present (i.e. Advert 3). For Questionnaire 2 the highest scoring adverts were for the car advert with the Visual Present (i.e. Advert 2) and bulb advert with Visual Rhetoric Absent (i.e. Advert 3).

In terms of *likelihood to purchase* the highest scoring adverts in Questionnaire 1 were for the car advert with the Visual Absent (i.e. Advert 2) and bulb advert with Visual Rhetoric Absent (i.e. Advert 4). For Questionnaire 2 the highest scoring adverts were for the car advert with the Visual Present (i.e. Advert 2) and bulb advert with Visual Rhetoric Absent (i.e. Advert 3).

With respect to *preference between adverts* the adverts with the highest count in Questionnaire 1 were for the car advert with the Visual Absent (i.e. Advert 2) and bulb advert with Visual Rhetoric Absent (i.e. Advert 4). These frequencies were

statistically different ($\alpha = 0.05$ or greater) from expected frequencies. For Questionnaire 2 the adverts with the highest counts were for the car advert with the Visual Present (i.e. Advert 2) and bulb advert with Visual Rhetoric Absent (i.e. Advert 3). These frequencies were not statistically different.

These results are combined and illustrated in Table 13. Evidently the only similarities between the two questionnaires with respect to the car adverts relate to attitude towards advert measure with Visual Present; yet for the bulb adverts all measures showed similar results between the questionnaires. This trend was that the bulb advert with Visual Rhetoric Absent scored higher and was preferred to the bulb advert with Visual Rhetoric Present.

Table 13: Combined summarised results for the three separate dependent variables tested. The number in the cell denotes the questionnaire where the highest score was recorded. (Shaded cells show occurrences of overlap).

ADVERT Description ^a	MEASURE		
	Attitude	Purchase	Preference
Car / visual present	1 / 2	2	2
Car / visual absent		1	1
Bulb / rhetoric present			
Bulb / rhetoric absent	1/2	1 / 2	1 / 2

^a –advert numbers and branding differences between the questionnaires have been removed for this comparison.

5.4 Inferential Statistics, Research Questions and Hypotheses

5.4.1 Attitude to Advert and Likelihood to Purchase

In addition to the descriptive statistics presented above, inferential statistics were also performed for the purposes of testing the hypotheses posed in Section 3.

The results obtained for Questionnaire 1 and Questionnaire 2 are shown in Table 14 and Table 15 respectively.

Table 14: Paired t-test relating to *attitude toward the advert* and *likelihood to purchase* for adverts presented in Questionnaire 1

COMPARISON		MEASURE	STATISTICS		
Description ^a	μ^b		D.F.	t-value	Pr > t
C / U / VP vs.	Attitude to advert	0.090	71	0.54	0.593
C / U / VA	Likelihood to purchase	-0.477	71	-2.16	0.034*
B / N / RP vs.	Attitude to advert	-0.292	70	-1.22	0.228
B / N / RA	Likelihood to purchase	-0.822	70	-3.75	0.000*

^a - To facilitate the legibility of the analysis the names of the adverts have been abbreviated. C = car, B = bulb, VP = visual present, VA = visual absent, RP = rhetoric present, RA = rhetoric absent, U = unknown brand, and N = known brand.

^b - μ denotes mean difference

*- This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

The results presented for Questionnaire 1 illustrate that there are two occurrences of significant difference between the adverts (at the 5% level or greater), namely:

- With respect to likelihood to purchase between Visual Present versus Visual Absent for the car adverts with the unknown brand ($p = 0.034$) – with the preference being for the advert with Visual Absent. Thus for Hypothesis 2: reject H_0 in favour of H_1 (for Questionnaire 1 only).
- With respect to likelihood to purchase between Visual Rhetoric Present versus Visual Rhetoric Absent for the bulb adverts with the known brand ($p = 0.000$) – with the preference being for the advert with Visual Rhetoric

Absent. Thus for Hypothesis 5: reject H_0 in favour of H_1 (for Questionnaire 1 only).

For Hypothesis 1 and Hypothesis 4 (for Questionnaire 1 only) we do not reject H_0 — i.e. there is no significant difference between the attitudes towards the adverts.

Table 15: Paired t -test relating to *attitude toward the advert* and *likelihood to purchase* for adverts presented in Questionnaire 2

COMPARISON Description ^a	MEASURE	STATISTICS			
		μ^b	D.F.	t -value	Pr > t
C / N / VP vs. C / N / VA	Attitude to advert Likelihood to purchase	0.606 0.564	51 51	2.21 -1.98	0.032* 0.053
B / U / RP vs. B / U / RA	Attitude to advert Likelihood to purchase	-0.899 -1.032	51 51	3.49 3.79	0.001* 0.000*

^a - To facilitate the legibility of the analysis the names of the adverts have been abbreviated. C = car, B = bulb, VP = visual present, VA = visual absent, RP = rhetoric present, RA = rhetoric absent, U = unknown brand, and N = known brand.

^b - μ denotes mean difference

*- This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

The results presented for Questionnaire 2 illustrate that there are three occurrences of significant difference between the adverts (at the 5% level or greater), namely:

- With respect to attitude toward the adverts between Visual Present versus Visual Absent for the car adverts with the known brand ($p = 0.032$) – with the preference being for the advert where the visual is present. Thus for Hypothesis 1: reject H_0 in favour of H_1 (for Questionnaire 2 only).

- With respect to attitude toward the adverts between Visual Rhetoric Present versus Visual Rhetoric Absent for the bulb adverts with the unknown brand ($p = 0.001$) – with the preference being for the advert where the visual rhetoric is present. Thus for Hypothesis 4: reject H_0 in favour of H_1 (for Questionnaire 2 only).
- With respect to likelihood to purchase between Visual Rhetoric Present versus Visual Rhetoric Absent for the bulb adverts with the known brand ($p = 0.000$) – with the preference being for the advert where the visual rhetoric is present. Thus for Hypothesis 5: reject H_0 in favour of H_1 (for Questionnaire 2 only).

For Hypothesis 3 (for Questionnaire 2 only) we do not reject H_0 – i.e. there is no significant difference between the attitudes towards the adverts.

5.4.2 Moderator Variables: Processing Style and Familiarity of Brand.

This section presents the statistical analyses to illustrate the relationship with moderator variables used in this study (i.e. processing style, familiarity with brand, and product type). As was highlighted in Section 4.8 the design of the questionnaires prohibited the statistical analyses of the two product types (i.e. symbolic versus utilitarian). The statistical analyses for the other two moderator variables are presented in Section 5.4.2.1 and Section **Error! Reference source not found.** respectively.

5.4.2.1 Processing Style

The absence of observations within certain quadrants of the Combined Need for Cognition (NFC) for Questionnaire 1 and 2 (i.e. Table 5 and Table 6) prohibit meaningful inferential statistics being calculated for this measure. Consequently there are no statistical analyses for NFC provided in these results.

As a result Hypothesis 7i and Hypothesis 8i could not be tested.

However the relatively equal distribution of 'high' (n = 73) and 'low' (n = 62) scores for Need for Emotion allowed for *t*-tests to be calculated for this comparison for *attitude to the advert* as documented in Table 16 and *likelihood to purchase* as documented in Table 17.

Table 16: *t*-test relating to differences between Need for Emotion scores and *attitude to the advert* (Note: Questionnaire 1 and Questionnaire 2 combined)

COMPARISON ^a	STATISTICS			
	μ	D.F.	<i>t</i> -value	Pr > <i>t</i>
C / U / VP : attitude - (NFE: 'High')	5.0263	73.9	-0.02	0.984
C / U / VP : attitude - (NFE: 'Low')	5.0321			
C / U / VA : attitude - (NFE: 'High')	4.9571	68.7	0.01	0.989
C / U / VA : attitude - (NFE: 'Low')	4.9527			
C / N / VP : attitude - (NFE: 'High')	5.6905	42.4	0.89	0.378
C / N / VP : attitude - (NFE: 'Low')	5.3226			
C / N / VA : attitude - (NFE: 'High')	4.6905	33.2	-0.53	0.599
C / N / VA : attitude - (NFE: 'Low')	4.9839			
B / U / RP : attitude - (NFE: 'High')	4.8333	43.8	0.77	0.448
B / U / RP : attitude - (NFE: 'Low')	4.4194			
B / U / RA : attitude - (NFE: 'High')	5.4167	37.2	-0.26	0.793
B / U / RA : attitude - (NFE: 'Low')	5.5323			
B / N / RP : attitude - (NFE: 'High')	5.1714	70	0.80	0.424
B / N / RP : attitude - (NFE: 'Low')	4.8446			
B / N / RA : attitude - (NFE: 'High')	5.2143	66.6	-0.32	0.753



^a - To facilitate the legibility of the analysis the names of the adverts have been abbreviated. C = car, B = bulb, VP = visual present, VA = visual absent, RP = rhetoric present, RA = rhetoric absent, U = unknown brand, and N = known brand.

*- This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

The above results (in Table 16) provide some indication of directionality, but there are no actual statistically significant differences between the Need for Emotion scores (i.e. 'high' versus 'low') (at the 5% level) and the *attitude towards advert*. This observation holds both for the different product types (i.e. car and bulb) and the different brands (i.e. known versus unknown). As a result, for Hypothesis 7ii we do not reject H_0 – i.e. there is no significant difference between the attitudes towards these adverts as a result of varying NFE scores.

Table 17: t-test relating to differences between Need for Emotion scores and likelihood to purchase (Note: Questionnaire 1 and Questionnaire 2 combined)

COMPARISON ^a	STATISTICS			
	μ	D.F.	t-value	Pr > t
C / U / VP : purchase - (NFE: 'High')	3.7456	74.6	1.01	0.316
C / U / VP : purchase - (NFE: 'Low')	3.3504			
C / U / VA : purchase - (NFE: 'High')	4.3524	69.5	1.34	0.186
C / U / VA : purchase - (NFE: 'Low')	3.7838			
C / N / VP : purchase - (NFE: 'High')	4.8095	38.3	0.87	0.392
C / N / VP : purchase - (NFE: 'Low')	4.3763			
C / N / VA : purchase - (NFE: 'High')	4.3175	38.1	1.06	0.296
C / N / VA : purchase - (NFE: 'Low')	3.7634			
B / U / RP : purchase - (NFE: 'High')	4.2762	68.8	1.18	0.243
B / U / RP : purchase - (NFE: 'Low')	4.0721			
B / U / RA-: purchase - (NFE: 'High')	5.5079	36	-0.56	0.579

B / U / RA : purchase - (NFE: 'Low')	5.7527			
B / N / RP : purchase - (NFE: 'High')	4.8095	48.8	0.57	0.569
B / N / RP : purchase - (NFE: 'Low')	4.4946			
B / N / RA : purchase - (NFE: 'High')	4.9143	67.1	-0.35	0.729
B / N / RA : purchase - (NFE: 'Low')	5.0648			

^a - To facilitate the legibility of the analysis the names of the adverts have been abbreviated. C = car, B = bulb, VP = visual present, VA = visual absent, RP = rhetoric present, RA = rhetoric absent, U = unknown brand, and N = known brand.

*- This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

As with the previous results, the above results (in Table 17) indicate some directionality of the calculated mean, but there are no actual statistically significant differences between the Need for Emotion scores (i.e. 'high' versus 'low') (at the 5% level) and *likelihood to purchase*. This observation holds both for the different product types (i.e. car and bulb) and the different brands (i.e. known versus unknown).

As a result for Hypothesis 8ii we do not reject H_0 – i.e. there is no significant difference between the likelihood to purchase good shown in these adverts as a result of varying NFE scores.

5.4.2.2 Product type

In Section 4.8 it was highlighted that the research design was inappropriate to enable comparison of the various product types – specifically on the basis that the car adverts focused on Visual Present vs. Visual Absent whereas the light bulb adverts focused on Visual Rhetoric Present vs. Visual Rhetoric Absent. On this basis it was unfeasible to undertake any meaningful statistics. Consequently Hypothesis 9 and Hypothesis 10 could not be assessed.

5.4.2.3 Familiarity of Brand

The third moderating variable that was tested to determine its impact of measures toward the advert was that of *familiarity of brand* (refer to Table 18 for analysis with respect to *attitude toward advert* and to The above results (in Table 18) indicate that there are no actual statistically significant differences between the familiarity of brand (i.e. 'known' versus 'unknown') (at the 5% level) and *attitude towards the advert*. This observation holds for the different product types.

Consequently for Hypothesis 11 we do not reject H_0 .

The results presented in Table 19 indicate that there are two instances where there was a statistically significant difference between familiarity of brand (i.e. 'known' versus 'unknown') and *likelihood to purchase*, namely:

- The likelihood to purchase a car where the visual is present in the advert ($p = 0.001$). According to the value of the mean, the preference was for a known brand (in this case the Toyota Prius). Thus for Hypothesis 12: reject H_0 in favour of H_1 (specifically for the car Visual Present advert).
- The likelihood to purchase a bulb where visual rhetoric is absent in the advert ($p = 0.027$). Where according to the value of the mean, the preference was for an unknown brand. Thus for Hypothesis 12: reject H_0 in favour of H_1 (specifically for the bulb Visual Rhetoric Absent advert).

Table 19 for *likelihood to purchase*). The results aim to illustrate whether familiarity with brand influences attitude to the advert or likelihood to purchase.

Table 18: *t*-test relating to differences between brands for attitude towards the advert (Note: Questionnaire 1 and Questionnaire 2 combined)

COMPARISON ^a	STATISTICS			
	μ	D.F.	<i>t</i> -value	Pr > <i>t</i>
C / VP : attitude - (Brand: U)	5.0292	97.4	-1.80	0.075
C / VP : attitude - (Brand: N)	5.4712			
C / VA : attitude - (Brand: U)	4.9549	86	0.30	0.782
C / VA : attitude - (Brand: N)	4.8654			
B / RP : attitude - (Brand: N)	5.0035	103	1.25	0.215
B / RP : attitude - (Brand: U)	4.5865			
B / RA : attitude - (Brand: N)	5.2746	114	-0.76	0.449
B / RA : attitude - (Brand: U)	5.4856			

^a - To facilitate the legibility of the analysis the names of the adverts have been abbreviated. C = car, B = bulb, VP = visual present, VA = visual absent, RP = rhetoric present, RA = rhetoric absent, U = unknown brand, and N = known brand.

*- This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

The above results (in Table 18) indicate that there are no actual statistically significant differences between the familiarity of brand (i.e. 'known' versus 'unknown') (at the 5% level) and *attitude towards the advert*. This observation holds for the different product types.

Consequently for Hypothesis 11 we do not reject H_0 .

The results presented in Table 19 indicate that there are two instances where there was a statistically significant difference between familiarity of brand (i.e. 'known' versus 'unknown') and *likelihood to purchase*, namely:

- The likelihood to purchase a car where the visual is present in the advert ($p = 0.001$). According to the value of the mean, the preference was for a

known brand (in this case the Toyota Prius). Thus for Hypothesis 12: reject H_0 in favour of H_1 (specifically for the car Visual Present advert).

- The likelihood to purchase a bulb where visual rhetoric is absent in the advert ($p = 0.027$). Where according to the value of the mean, the preference was for an unknown brand. Thus for Hypothesis 12: reject H_0 in favour of H_1 (specifically for the bulb Visual Rhetoric Absent advert).

Table 19: *t*-test relating to differences between brands for likelihood to purchase (Note: Questionnaire 1 and Questionnaire 2 combined)

COMPARISON ^a	STATISTICS			
	μ	D.F.	<i>t</i> -value	Pr > <i>t</i>
C / VP : purchase - (Brand: U)	3.5455	110	-3.27	0.001*
C / VP : purchase - (Brand: N)	4.5513			
C / VA : purchase - (Brand: U)	4.0602	111	0.22	0.825
C / VA : purchase - (Brand: N)	3.9872			
B / RP : purchase - (Brand: N)	4.1713	60.9	-1.53	0.131
B / RP : purchase - (Brand: U)	4.6218			
B / RA : purchase - (Brand: N)	4.9906	120	-2.24	0,027*
B / RA : purchase - (Brand: U)	5.6538			

^a - To facilitate the legibility of the analysis the names of the adverts have been abbreviated. C = car, B = bulb, VP = visual present, VA = visual absent, RP = rhetoric present, RA = rhetoric absent, U = unknown brand, and N = known brand.

*- This denotes where there is a significant difference ($\alpha = 0.05$ or greater) between the means of the set of advert attributes assessed

5.4.3 Summary of Findings with respect to Hypotheses Tested

Summarised findings are presented below.

Table 20: Summarised findings of statistical analyses

HYPOTHESIS	REJECT OR NOT
1. No difference in attitudes towards visual present vs. visual absent advert	Q1: Do not reject H_0 Q2: Do not reject H_0
2. No difference in likelihood to purchase between visual present vs. visual absent advert	Q1: Reject H_0 Q2: Do not reject H_0
3. No difference in preference between visual present vs. visual absent advert	Q1: Reject H_0 Q2: Do not reject H_0
4. No difference in attitudes towards rhetoric present vs. rhetoric absent advert	Q1: Do not reject H_0 Q2: Reject H_0
5. No difference in likelihood to purchase between rhetoric present vs. rhetoric absent advert	Q1: Reject H_0 Q2: Do not reject H_0
6. No difference in preference between rhetoric present vs. rhetoric absent advert	Q1: Do not reject H_0 Q2: Do not reject H_0
7i. No difference in attitudes between low NFC vs. high NFC	No meaning statistical analysis possible
7ii. No difference in attitudes between low NFE vs. high NFE	Do not reject H_0
8i. No difference in likelihood to purchase between low NFC vs. high NFC	No meaning statistical analysis possible
8ii. No difference in likelihood to purchase between low NFE vs. high NFE	Do not reject H_0
9. No difference in attitudes between symbolic product vs. utilitarian product	No meaning statistical analysis possible
10. No difference in likelihood to purchase between symbolic product vs. utilitarian product	No meaning statistical analysis possible
11. No difference in attitudes between known brand vs. unknown brand	All: Do not reject H_0
12. No difference in likelihood to purchase between known brand vs. unknown brand	C/VP Purchase: Reject H_0 B/RA Purchase: Reject H_0 For the remainder: Do not reject H_0

6 DISCUSSION OF RESULTS

6.1 Demographics and Descriptive Statistics

The size of the population of respondents to this research numbered 135, with a completion rate of approximately 91%. On this basis there was a large enough sample to undertake statistical analysis and it could be inferred that the research instrument did not present a challenge to the respondents.

With respect to gender of respondents, it was evident that there was a large bias towards men (i.e. 70% representation). Although gender was not a variable assessed during this research, past research has shown that women are more emotionally oriented than men and have been found to score significantly higher on the NFE scale than men (Raman, *et al.*, 1995). An analysis of the original data revealed that there was an almost equal distribution of females with a high NFE ($n = 21$) as with a low NFE ($n = 19$). Consequently gender influences have been treated as not present in the current research.

Other considerations regarding the demographics of the sample population is the fact that the majority (>80%) of the respondents were from South Africa, even though the *MBAConnect* website has an international membership. On this basis it could be assumed that the majority of the respondents were equally familiar with the product types and known brands used in this experiment.

In spite of these gender or origin biases the data collected was considered suitable for the purposes of this exercise. This was further supported by the high Cronbach's α values obtained for all scales, emphasising the reliability of scales used in the research.

Nevertheless, a shortcoming of the results obtained relates to the processing styles of the respondents, in particular NFC, where there was only one respondent in

each questionnaire that had a 'low' NFC. Although Mostafa (2006) has indicated that a student population is suitable for research purposes, by their very nature (i.e. part of a tertiary academic institution) it could be expected that there would be a higher than average cognition score for such a group. The implications of this lack of representation in certain quadrants of the processing style matrix (refer to Table 5 and Table 6) meant that all of the intended statistics could not be performed, in particular with respect to NFC. Consequently the sample population was considered to be cognitive in nature and hence the results obtained were considered in that context.

6.2 The Need for Visual *and* Verbal

6.2.1 Attitude Towards the Advert

Descriptive statistics regarding attitude toward the advert within Table 7 and Table 8 indicate that for both questionnaires the advert with Visual Present was 'favoured' over the advert with Visual Absent (i.e. $\mu_{VP} = 5.03$ versus $\mu_{VA} = 4.95$ for Questionnaire 1 and $\mu_{VP} = 5.47$ versus $\mu_{VA} = 4.87$ for Questionnaire 2).

Yet when analysing the results of the *t*-test (refer to first lines of Table 14 and Table 15) the only statistically significant difference ($p = 0.032$) was in Questionnaire 2 where the Visual Present in the advert for the known car brand scored higher than for Visual Absent for the same car brand. In the context of the results obtained there is a difference between the attitudes towards an advert with Visual Present compare with Visuals Absent. Thus we reject H_0 for Hypothesis 1.

Given these findings it could be argued that there is support for the "picture-superiority effect" widely applied in the design of print advertising (Tang, *et al.*, 2004). Further to this it could also be argued that the imagery has been and will continue to be instrumental in communicating emotional and complex environmental issues (Nicholson-Cole, 2005; Sheppard, 2006) presented by

advertising the need for a hybrid vehicle to address environmental concerns. However the influence of the familiarity of the Toyota Prius brand should also be considered as an influential factor.

6.2.2 Likelihood to purchase

An opposing finding was apparent when considering the descriptive statistics regarding likelihood to purchase. Within Table 9 and Table 10 evidence is presented that adverts with Visual Absent are 'favoured' over the advert with Visual Present (i.e. $\mu_{VA} = 4.06$ versus $\mu_{VP} = 3.55$ for Questionnaire 1). The results of the *t*-test (refer to second line of Table 14) demonstrates that this difference was statistically significant ($p = 0.034$) for Visual Absent in Questionnaire 1.

Consequently these results for likelihood to purchase provide a complete reversal of the findings, in favour of Visual Present, as described above. Nevertheless we still reject H_0 for Hypothesis 2, as there is a difference between likelihood to purchase between adverts that have visuals present or not.

In this regard the author wishes to put forward two potential explanations – the first relates to the advert design used and the second, the relevance of processing style.

Firstly while the advert pairing has been termed Visual Present versus Visual Absent or Predominantly Visual versus Predominantly Verbal, the composition of the content of the fictitious advert for Visual Absent/Predominantly Verbal may not be in keeping with the actual intention to exclude imagery and other visual elements – in other words the background imagery of the winding road through a forest with a portion of the car represented would still constitute a visual element in spite of the inclusion of descriptive text. On this basis it could be argued that the advert is in fact a combination of visual *and* verbal rather than predominantly verbal as had been intended. Furthermore since the same advert (bar the inclusion the

logo-type for each brand) was used for both questionnaires the same consideration could be applied to each questionnaire.

If this proposition is true then the past research findings regarding the influence of visual and verbal communication (Stathakopoulos, *et al.*, 2008; Tang, *et al.*, 2004) on consumers purchasing behaviour would apply, i.e. that *both* the visual and verbal communication elements, in combination and in isolation, effect how the advert is viewed. In so doing it is the combined influence of visuals and verbal elements that has resulted in a high rating as opposed to that of either one in isolation.

The second proposition relates to the fact that the vast majority of respondents had a high NFC score. The implications of this is that the respondents would prefer 'cognitive-type' adverts, as Ruiz & Sicilia (2004) have shown that for adverts to appeal to consumers they must align to processing style. If this is truly the case and the likes of the Lavidge & Steiner Model (1961) and Cacioppo & Petty's (1982) research into the NFC scale hold, cognitive respondents will rely on their thoughts and will seek out knowledge ahead of developing a liking for the advert (which is more emotional in nature). In all likelihood it is probably a combination of these factors that has resulting in the results obtained.

6.2.3 Ad Preference

Table 11 and Table 12 provide the results of the advert preference for Questionnaire 1 and Questionnaire 2 respectively. In both of these tables our concern is with the pairings of Advert 1 and 2. The results show that although there are differences in the preference frequencies between the adverts, these differences are not the same between the two questionnaires – viz. in Questionnaire 1 the preference is for the Visual Absent advert but in Questionnaire 2 the preference is for the Visual Present advert. Consequently the difference in Questionnaire 1 is statistically significant ($p = 0.018$) and warrants rejecting H_0 for

Hypothesis 3i. However, the findings for Questionnaire 2 were not significant and consequently we cannot reject H_0 for Hypothesis 3ii.

The results for preference between the adverts follows the same pattern as was observed for likelihood to purchase (refer to Table 13 to see this illustrated).

The explanation for this finding is the same as that presented in the preceding section, namely that the cognitive bias of the sample population would predispose them to preferring cognitive-type adverts, i.e. adverts where visual is absent or alternatively where explanatory information is present. As stated above, the Lavidge & Steiner model indicates that cognitive processes are required to grow awareness and knowledge prior to purchasing or developing a preference for an advert. Hence this may explain the preference for the cognitive-type advert.

6.3 The Value of Visual Rhetoric

6.3.1 Attitude Towards the Advert

Descriptive statistics within Table 7 and Table 8 indicate that for Questionnaire 1 the advert with Visual Rhetoric Absent was favoured (i.e. $\mu_{RP} = 5.0$ versus $\mu_{RA} = 5.27$) and that the same trend was evident in Questionnaire 2 with Visual Rhetoric Absent was preferred (i.e. $\mu_{RP} = 4.59$ versus $\mu_{RA} = 5.49$). The associated t -tests that were conducted (refer to third lines of Table 14 and Table 15) indicate that the trend in both questionnaires was the same, i.e. that Visual Rhetoric Absent was preferred to Visual Rhetoric Present. However this difference was only statistically significant ($p = 0.000$) in Questionnaire 2. Since the directionality is the same and one of the results is significant we reject H_0 for Hypothesis 4.

Since the Visual Rhetoric Absent adverts scored highest for both questionnaires across all the measures a joint explanation and discussion is presented at the end of 6.3.3.

6.3.2 Likelihood to purchase

A supportive finding was apparent when considering the descriptive statistics regarding likelihood to purchase for Questionnaire 1 where the advert with Visual Rhetoric Absent was favoured (i.e. $\mu_{RP} = 4.17$ versus $\mu_{RA} = 4.99$). For Questionnaire 2 the advert with Visual Rhetoric Absent was also preferred (i.e. $\mu_{RP} = 4.62$ versus $\mu_{RA} = 5.66$) as had been the case for attitude toward the advert. The results of the *t*-test (refer to fourth line of Table 14 and Table 15) demonstrates that this difference was statistically significant ($p = 0.000$) for both questionnaires with respect to Visual Rhetoric Absent. On this basis we reject H_0 for Hypothesis 5.

As alluded to above the consistent higher scoring for Visual Rhetoric Absent adverts provides for a single explanation to be provided at the end of 6.3.3.

6.3.3 Ad Preference

Table 11 and Table 12 provide the results of the advert preference. In both of these tables our concern is with the pairings of Advert 3 and 4. The results show that there are similar differences in the preference frequencies between the adverts, and that these are the same between the two questionnaires – viz. in Questionnaire 1 and Questionnaire 2 the preference is for the Visual Rhetoric Absent advert. The only difference is that the difference in Questionnaire 1 is statistically significant ($p = 0.013$) whereas the difference in Questionnaire 2 is not ($p = 0.052$). Since the former is significant and the latter nearly significant we reject H_0 for Hypothesis 6i and infer that we can also reject H_0 for Hypothesis 6ii.

The results obtained clearly indicate that adverts with the intended visual rhetoric removed were preferred and scored higher than adverts with the visual rhetoric present on every occasion. As a quick synopsis it could be argued that such findings are at odds with the literature which highlighted the benefits of including visual rhetoric in adverts (Ang & Lim, 2006; Jeong, 2008), since the rhetoric

“understanding from a mastered subject to a new domain” (Eppler & Burkhard, 2007), and thereby facilitating persuasiveness.

Jeong (2008) goes as far as to suggest that to make adverts more persuasive the adverts must contain metaphorical images (as had been intended with the ‘flower’ in the present research), rather than literal visual images (which the stand alone bulb was thought to illustrate).

Aside from the research finding presenting such conclusive proof to the contrary of the literature there are several other factors to consider, as discussed below.

Firstly Lagerwerf & Meijers (2008) have indicated that past research into the use of visual metaphors/rhetoric presented results where it could not be established whether it was the visual's metaphor or its openness to interpretation that causes the higher elicitation of thoughts and enhanced appreciation. For them a factor such as openness would be heavily influenced by the society in which the advert is placed; in that if the society is use to instructional explicit communication, the observer take the message at face value. However in a society where communication in more typically implicit and open to interpretation the use of a metaphor will encourage people to explore the potential meaning/s associated with the image and from that make a decision. The present research did not explore such societal measures and consequently this potential explanation cannot be explored further in this study.

An additional suggestion links to finds by Callow & Schiffman (2004, p1113) where they argue that while visual elements (such as pictures, colours, etc.) are universal, “visual language (inclusive of visual rhetoric and semiotics) varies between cultures”. Hence the intended messages to be conveyed as part of global advertising campaigns may only be applicable in certain contexts. However as was alluded to above the vast majority of respondents were South African and it could be argued that since they are business school learners they should not have vastly

different appreciations for the rhetoric used. In fact the results demonstrate that the majority do interpret it the same way but just not in accordance with the findings contained in the literature.

The last suggestion is akin to that made for the adverts for the cars, namely that the fault lay in the advert design. The reason for this comment relates to the fact that rhetoric covers more than just metaphorical images. It also includes colour and semiotics.

Lichtlé (2007) states that historically, colour fulfilled both a symbolic and an aesthetic function. Colours can be used to symbolize elements (e.g. orange for fire, green or blue for water), space (through the use of light blue), or time (through the use of black and white). Similarly certain colours evoke psychological reactions through signals such as warmth, relaxation, danger, energy, purity and death (Courtis, 2004). The relevance of this in the context of the present research is that for the Visual Rhetoric Absent advert the bulb was placed in front of green leaves, which from a colour perspective and a semiotic perspective (iconography of foliage) may have inadvertently created an advert with 'greater' visual rhetoric than was created by the metaphor.

Unfortunately the instrument design did not make provision for the influence of such factors to be explored. Consequently this may need to be considered for future such research.

6.4 The Implications of Consumer Processing Style

It has already been highlighted that the results obtained for NFC processing style were unsuitable for meaningful statistical analysis to be undertaken on this measure. Given this Hypothesis 7i and Hypothesis 8i could not be statistically tested. Nevertheless Table 5 Table 6 both illustrate that the sample predominantly

had a cognitive processing style as the vast majority were categorised as NFC 'High'.

With respect to NFE the sample population was relatively evenly spread enabling *t*-tests to be calculated for *attitude to the advert* as documented in Table 16 and *likelihood to purchase* as documented in Table 17. The results obtained for the two NFE categories used (i.e. 'high' and 'low') in relation to both measures for all adverts options did not show significant difference between the categories. On this basis we do not reject H_0 for Hypothesis 7ii and 8ii.

The literature (Sojka & Giese, 2006) has established that in general, it appears that individuals high cognition may prefer adverts that contain more verbal elements; individuals high in emotion may prefer pictures and individuals high in emotion and cognition prefer adverts that contain both visual and verbal elements for them to process. The findings of this research confirm this on the basis that almost all people has a high cognition score and showed a preference for the Visual Absent advert in the majority of instances. Interestingly enough the fact that the advert may have contained visual and verbal elements as opposed to have being predominantly verbal (i.e. Visual Absent) meant that it was the combined visual and verbal elements that were appealing and not the exclusion of the visual element. This is in keeping with the findings of Stathakopoulos, Theodorakis & Mastoridou (2008) as presented in the literature review.

With specific reference to the environment, the attitude-behaviour gap indicates that consumers perceive and process environmental issues in a more 'emotional' manner (Nicholson-Cole, 2005, p260); inferring that an environmental issue has stronger relation with the affect/emotion of the consumer than with their cognition. This associate of high emotion with more emotionally laden adverts was not evident in this research as the adverts were purposely designed to exclude emotion. Hence the influence of the NFE score in the context of such high NFC representation precludes the ability to make any comments in this regard.

It has been determined by Mukherjee (2002) that to determine effectiveness of the advert in an emotional context consideration should be given to the consumer's response towards the advert *after* seeing it. It is thus inferred that the emotional attitude NFE towards the advert is measure relative to the emotions the advert evokes. For this research the NFE measure was calculated prior to the advert being viewed, which could be considered a shortcoming in research design.

6.5 The Influence of Product Type and Familiarity of Brand

6.5.1 Product Type

In Section 5.4.2.2 it was highlighted that the research design was inappropriate to enable comparison of the various product types and that consequently Hypothesis 9 and Hypothesis 10 could not be assessed.

Consequently no additional comment based on findings can be made.

Although Ruiz & Sicilia (2004) indicated rational and informational advertising should be used for “thinking” or “functional” products and emotional appeals for “feeling” or “transformational” products the absence of meaningful data prevented this from being undertaken.

Nevertheless, it would be worthwhile to determine whether the consistency in choice regarding the light bulb adverts when compared with the ambivalence shown on the car adverts is in anyway the result of the different product types.

6.5.2 Familiarity of Brand

Section 5.4.2.3 provides the results obtained regarding familiarity of brand against attitude toward advert (refer to Table 18) and likelihood to purchase the good advertised (refer to Table 19). Results contained in the former indicate that there are no statistically significant relationships between familiarity of brand and attitude

toward the advert for both adverts. Consequently for Hypothesis 11 we do not reject H_0 .

For the latter just two occurrences of statistically significant relationship were noted, namely: likelihood to purchase a known brand car when the visual is present in the advert ($p = 0.001$) and the likelihood to purchase an unknown bulb when visual rhetoric is absent in the advert ($p = 0.027$). Thus for Hypothesis 12: reject H_0 in favour of H_1 only for these two occurrences.

The first finding would be in keeping with research by Bjerke, Rosendahl, Gopalakrishna & Sandler (2005) that showed that “likeability” of an advert is associated with favourable attitudes toward the brand, and more likeable adverts have greater persuasive impact. If this holds in all cases it may be inferred that there is a liking for Toyota but a disliking for Philips. However as the preceding discussion has indicated there are a multitude of factors that could be contributing to the success of the Toyota branded advert and the lack of success of the Philips branded advert.

Such factors could be entirely attributable to the advert design or to the types of products being purchased, i.e. when the product is symbolic branding is of greater importance but when the product is utilitarian an established brand may be considered a more costly option, all of which were not researched. Which Scott & Vargas (2007) state that when working on branding ‘the value and meaning of brands can only be accommodated by a complex, subtle examination of multiple factors, including the history and its advertising over time’.

6.6 Concerns with findings

The main concerns with the findings were:

- The alleged suitability of business school students for such research appears questionable when certain characteristics in the sample population

(i.e. NFC) are found to lack heterogeneity. Aside from the prohibitive nature of such results for rigorous statistical analysis, the resultant findings can only be attributed to a similar homogeneous sample. Extrapolation of findings to a broader population cannot be undertaken with any degree of certainty.

- There were shortcomings in the questionnaire design and layout that prevented certain statistical analyses. Since this related to one of the moderator variables (i.e. product type) it is difficult to confirm whether some of the statistical observations made during the study had been influenced by that specific variable.
- The final concern relates to the difficulty of trying to define and study visual elements in advertising. By their very nature, visual elements include numerous characteristics (e.g. colour, size, location on page, etc.), all of which may be influencing the observer. So as for known moderator variables, unknown variables can be equally influential on the results obtained.

7 CONCLUSION

7.1 Main Findings

Since it has been established that much of the information that consumers obtain about environmental factors comes via mass media in particular advertising (Iyer and Banerjee 1993), its application is of key importance to addressing consumptive behaviours expected to correct environmental problems.

To this end the key findings that have been gleaned from this research are:

- The superiority of visuals in print advertising is not as evident as the majority of the literature indicates. The more recent arguments for the highest impact coming from the meaningful aligned combinations of visuals and copy were in evidence.
- The use of visual rhetoric, as intended, did not create results as was deemed to occur based on the literature. However this comment has the caveat that it is assumed that the reciprocal advert used (i.e. the light bulb in front of the green leaf) was not a better representation of visual rhetoric than the advert chosen for that purpose.
- The inability to undertake comprehensive statistical analysis of processing style has prevented valuable insights being gained. However the descriptive statistics and anecdotal observations made have illustrated that there is alignment between advert format and processing style. People who score high for NFC appeared to demonstrate a preference for adverts that encouraged them to think, however since the adverts contained both imagery and copy it cannot be comprehensively concluded that such a relationship was observed during this research.

- With the exception of the visual advert for the Toyota Prius and the advert for the unknown brand of light bulb with Visual Rhetoric Absent the secondary market influences of product type and familiarity of brand did not provide overwhelming statistical evidence of the product and brand being influential factors.

Nevertheless the findings from this research are that in the case of visual:verbal processing, it has been established as with previous research (Sojka & Giese, 2001; Ruiz & Sicilia, 2004) that persuasive appeal of adverts are more effective when the form of the appeal is similar to either of the two processing styles. So, although consumers can be exposed to the same ad, they can respond differently to the visual and verbal components in the advert based on their preference for visual or verbal information. It is also acknowledged that other visual factors may have influence the viewer's response to an advertisement, this includes aspects such as: picture size, exposure time and number of exposures. An (2007) states that an increase in any of these three variables has been shown to increase recognition, and encoding of details of the advert.

In spite of these findings it is apparent that advert design has a critical role to play in influencing consumer behaviour regarding environmental issues. On this basis there are implications to be considered both by researchers and practitioners as is addressed below.

7.2 Research Implications

This research has indicated that research design pertaining to advertising studies proves to be challenging from the view point that there are a multitude of variables potentially involved in the interactions between advert and observe. Future research could address this through a more precisely designed experimental approach that can manage all the extraneous factors and alternative influences.

However as has been shown, irrespective of the research and efforts that goes into defining an effective message one cannot account for how the message will be interpreted – i.e. how the consumer's processing style will support or inhibit the intended intension and persuasiveness of the message.

Due to the complexity of this matter not only would the design of the experiment warrant careful attention, but the manner in which the data is analysed would also need to be addressed, as it is likely to be multivariate in nature.

7.3 Practical Implications - Recommendations to advertisers

Producers have recognized the financial viability of the production and sale of green goods (Kärnä, *et al.*, 2001) and have not only responded through dubious advertising claims but have in fact changed the way they produce good thereby lowering their impact on the environment. Unfortunately as Todd (2004, p 87) highlights green consumerism does not address the origins of environmental problems because it does not necessarily lead to reduced consumption, particularly by the end consumers. On this basis is advertisers truly wish to influence consumptive behaviours to the betterment of the environment some of the advertising should be aimed at ceasing consumption as well as reducing it or encouraging the adoption of more environmentally friendly alternatives.

On these grounds advertisers should explore both angles for consideration on developing their adverts. Which by implications that they have to give more attention to the advert design and content as well as the consumer's disposition. Fortunately the advertising industry has knows this already as this is what many advertising and communication models hinge off of.

Due to the complexity of environmental issues, it is recommended that the use of visuals in adverting be used to aid consumers in their understanding of such issues. Only once the majority of consumers are cognitive of this will they make

better-informed decisions around consumption. The current advertising efforts, including those of this research appear to have disregarded this phased progress that consumer behaviour matures through. The result is that the success of the advert is reliant on likeability and not on making an informed decision.

7.4 Recommendations for Future Research

There are a multitude of recommendations for future research, some of which have been alluded to above. However the main recommendations arising out of this research and the intention of sustainably altering consumptive patterns is as follows:

- Replicate the current study with the use of actual marketing / advertising material.
- Select or design adverts so as to minimise the multitude of influential factors. Consider additional visual elements such as colour, size, exposure time and number of exposures (as per An, 2007).
- Give more attention to cultural issues in the research such as Hofstede's cross-cultural constructs (as per Bu, et al. 2009) as this will help to highlight how messages are interpreted.
- As per Braun-LaTour & LaTour (2005) recommend, include negative scare images as this is deemed to lead leads to better memory retention because such imagery is more arousing.
- Use more sophisticated statistics to accommodate for these complexities.

However the most important recommendation for future research is to move away from print media and consider new media and all the flexibility it provides. Such a study would be worthwhile on the basis of developments around social media, networking and the potential customisable messages that can be transferred.

8 REFERENCES

- Albright, S., Winston, W. & Zappe, C. (2006). *Data Analysis & Decision Making with Microsoft Excel*. 3rd ed. United States of America, Thomson South-Western.
- An, D. (2007). Advertising visuals in global brands' local websites: a six-country comparison. *International Journal of Advertising*, 26(3), 303 – 332.
- Ang, S. & Lim, E. (2006). The influence of metaphors and product type on brand personality perceptions and attitudes. *Journal of Advertising*, 35(2), 39 – 53.
- Appleton, K. & Lovett, A. (2003). GIS-based visualisation of rural landscapes: defining 'sufficient' realism for environmental decision-making. *Landscape and Urban Planning*, 65, 117–131.
- Bauer, M & Johnson-Laird, P. (1993). How diagrams can improve reasoning. *Psychological Science*, 4(6), 372 – 378.
- Banerjee, S., Gulas, C. & Iyer, E. (1995). Shades of Green: A Multidimensional Analysis of Environmental Advertising. *Journal of Advertising*, 24(2), 21 – 31.
- Bhate, S. & Lawler, K. (1997). Environmentally friendly products: factors that influence their adoption. *Technovation*, 17(8), 457 – 465.
- Bjerke, R., Rosendahl, T., Gopalakrishna, P. & Sandler, D. (2005). Ad element liking and its relationship to overall ad liking: a European cross-cultural investigation. *Journal of Promotion Management*, 12(1), 97 – 128
- Bibri, M. (2008). *Corporate Sustainability/CSR Communications & Value Creation: A Marketing Approach*. Master of Business Administration Thesis, Blekinge Institute of Technology, Sweden.

Brakus, B., Schmitt, B. & Zarantonello, L. (2007). Brand experience: What is it? How is it measured? Does it affect loyalty? *Journal of Marketing*, 73 (May), 52 – 68

Braun-LaTour, K. & LaTour, M. (2005) Predicting ad response over time: a comparison of arousal and ad-liking to outcomes of explicit memory. *Advances in Consumer Research*, 32, 241 – 242

Brumberger, E. (2007). Making the strange familiar - a pedagogical exploration of visual thinking. *Journal of Business and Technical Communication*, 21(4), 376 - 401.

Bu, K., Kim, D. & Lee, S. (2009). Determinants of visual forms used in print advertising. *International Journal of Advertising*, 28(1), 13 - 47.

Bulmer, S. & Buchanan-Oliver, M. (2006). Visual rhetoric and global advertising imagery. *Journal of Marketing Communications*, 12(1), 49 - 61.

Cacioppo, J. & Petty, R. (1982). The need for cognition. *Journal of Psychology*, 42(1), 16 - 131.

Cacioppo, J., Petty, R. & Kao, C. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, 48(3), 306 – 307.

Callow, M. & Schiffman, L. (2004). Sociocultural meanings in visually standardized print ads. *European Journal of Marketing*, 38(9/10), 1113 – 1128.

Carlson, L., Grove, S. & Kangun, N. (1993). A content analysis of environmental advertising claims: a matrix method approach. *Journal of Advertising*, 22(3), 27 – 39.

Clow, K., James, K., Kranenburg, K. & Berry, C. (2009) An examination of the visual element used in generic message advertisements: A comparison of goods and services. *Services Marketing Quarterly*, 30(1), 69 — 84.

Courtis, J. (2004). Colour as visual rhetoric in financial reporting. *Accounting Forum*, 28, 265 – 281.

Decrop, A. (2007). The influence of message format on the effectiveness of print adverts for tourism destinations. *International Journal of Advertising*, 26(4), 505 – 525.

DeRosia, E. (2008). The effectiveness of nonverbal symbolic signs and metaphors in adverts: an experimental inquiry. *Psychology & Marketing*, 25(3), 298 – 316

Desanctis, G. & Jarvenpaa, S. (1989). Graphical presentation of accounting data for financial forecasting: An experimental investigation. *Accounting, Organisation and Society*, 14(5/6), 509 – 525.

Du Plessis, E. (2005). *The advertised mind: ground-breaking insights into how our brains respond to advertising*. London, Kogan-Page.

Engelhardt, Y. (2007). Syntactic structures in graphics. *Image*, 5(1), 23 – 35.

Eppler, M. & Burkhard, R. (2007). Visual representations in knowledge management: framework and cases. *Journal of Knowledge Management*, 11(4), 112 - 122.

Haddock, G & Zanna, M. (1993). Predicting prejudicial attitudes: the importance of affect, cognition, and the feeling-belief dimension. *Advances in Consumer Research*, 20, 315 – 318.

Hall, B. (2002). A new model for measuring advertising effectiveness. *Journal of Advertising Research*, March-April, 23 – 31.

Huhmann, B. (2003). Visual complexity in banner ads: the role of color, photography, and animation. *Visual Communication Quarterly*, 10, 10 - 17.

Iyer, E. & Banerjee, B. (1993). Anatomy of green advertising. *Advances in Consumer Research*, 20(1), 494 – 501.

Jenner, E. (2005). Greenwashing: visual communication and political influence in environmental policy. Ph.D. thesis, Louisiana State University.

Jeong, S. (2008). Visual metaphor in advertising: is the persuasive effect attributable to visual argumentation or metaphorical rhetoric? *Journal of Marketing Communications*, 14(1), 59 – 73.

Kärnä, J., Juslin, H., Ahonen, V. & Hansen, V. (2001). Green advertising: greenwash or a true reflection of marketing strategies? *Greener Management International*, 33, 59 – 70.

Kilbourne, W. & Beckmann, S. (1998). Review and critical assessment of research on marketing and the environment. *Journal of Marketing Management*, 14, 513 – 532.

Kilbourne, W. & Carlson, L. (2008). The dominant social paradigm, consumption, and environmental attitudes: can macromarketing education help? *Journal of Macromarketing*, 28(2), 106 - 121.

Kim, M. & Lennon, S. (2008). The effects of visual and verbal information on attitudes and purchase intentions in internet shopping. *Psychology & Marketing*, 25(2), 146 – 178.

Kim, Y. & Choi, S. (2005). Antecedents of green purchase behaviour: an examination of collectivism, environmental concern, and PCE. *Advances in Consumer Research*, 32, 592 – 599.

Kollmuss, A. & Agyeman, J. (2002), 'Mind the gap: Why do people act environmentally and what are the barriers to pro-environment behaviour?', *Environmental Education Research* 8(3), 239–260.

Korfiatis, K., Stamou, A. & Paraskevopoulos, S. (2004). Images of nature in Greek primary school textbooks. *Science Education*, 88(1), 72 – 89.

Kotler, P. & Armstrong, G. (2008). *Principles of Marketing* (12th edn), New Jersey, Pearson Education.

Lagerwerf, L. & Meijers, A. (2008). Openness in metaphorical and straightforward advertisements: appreciation effects. *Journal of Advertising*, 37(2), 19 - 31.

Leedy, P. & Ormrod, J. (2005). *Practical Research: Planning and Design*. 8th ed. New Jersey: Merrill/Prentice Hall.

Lichtlé, M. (2007). The effect of an advert's colour on emotions evoked by an ad and attitude towards the ad. *International Journal of Advertising*, 26(1), 37 – 62

Lurie, N. & Mason, C. (2007). Visual representation: implications for decision Making. *Journal of Marketing*, 71, 160 – 177.

Martin, B., Sherrard, M. & Wentzel, D. (2005). The role of sensation seeking and need for cognition on web-site evaluations: A resource-matching perspective. *Psychology & Marketing*, 22, 109 – 124.

McQuarrie, E. & Mick, D. (1999). Visual rhetoric in advertising: text-interpretive, experimental, and reader-response analyses. *Journal of Consumer Research*, 26(1), 37 - 54.

McQuarrie, E. & Phillips, B. (2005). Indirect persuasion in advertising: how consumers process metaphors presented in pictures and words. *Journal of Advertising*, 34(2), 7 – 20.

Messaris, P. (1997) *Visual Persuasion: The Role of Images in Advertising* Thousand Oaks: Sage
in Jeong, S. (2008). Visual metaphor in advertising: is the

persuasive effect attributable to visual argumentation or metaphorical rhetoric? *Journal of Marketing Communications*, 14(1), 59 – 73.

Meyers-Levy, J. & Peracchio, L. (1995). Understanding the effects of colour: how the correspondence between available and required resources affects attitudes. *Journal of Consumer Research*, 22, 121 – 138.

Montoro-Rios, F., Luque-Martínez, T. & Rodríguez-Molina, M. (2008). How green should you be: can environmental associations enhance brand performance. *Journal of Advertising Research*, 547 – 563.

Mostafa, M. (2006). Antecedents of Egyptian consumers' green purchase intentions. *Journal of International Consumer Marketing*, 19(2), 97 – 126.

Mukherjee, A. (2002). Pictures in words or words in pictures? New insights from Indian print advertising research. *International Journal of Advertising*, 21, 67 – 86.

Nicholson-Cole, S. (2005). Representing climate change futures: A critique on the use of images for visual communication. *Computers, Environment and Urban Systems*, 29(3), 255 – 273

Peattie, K. & Crane, A. (2005). Green marketing: legend, myth, farce or prophesy? *Qualitative Market Research*, 8(4), 357 – 370.

Phillips, B. & McQuarrie, E. (2002). The development, change, and transformation of rhetorical style in magazine advertisements, 1954–1999. *Journal of Advertising*, 31(4), 1 – 13.

Raman, N., Chattopadhyay, P. & Hoyer, W. (1995). Do consumers seek emotional situations: the need for emotion scale. *Advances in Consumer Research*, 22, 537 – 542.

Reddy, B. & Assenza, G. (2009). The great climate debate. *Energy Policy*, 37(8), 2997-3008.

Ruiz, S. & Sicilia, M. (2004). The impact of cognitive and/or affective processing styles on consumer response to advertising appeals. *Journal of Business Research*, 57, 657 – 664.

Schaefer, A. & Crane, A. (2005). Addressing sustainability and consumption. *Journal of Macromarketing*, 25(1), 79 - 92.

Shrum, L., McCarty, J. & Lowrey, T. (1995). Buyer characteristics of the green consumer and their implications for advertising strategy. *Journal of Advertising*, 24(2), 71 – 82.

Schuhwerk, M. & Lefkoff-Hagius, R. (1995). Green or Non-Green? Does Type of Appeal Matter When Advertising a Green Product? *Journal of Advertising*, 24(2), 45 – 54.

Scott, J. (2008). Visual representations in problem solving and decision-making. *International Journal of Management and Decision Making*, 9(3), 266 – 280.

Scott, L. & Vargas, P. (2007). Writing with Pictures: Toward a Unifying Theory of Consumer Response to Images. *Journal of Consumer Research*, 34(3), 341 - 356.

Sheppard, S. (2006). Bridging the sustainability gap with landscape visualization in community visioning hubs. *The Integrated Assessment Journal: Bridging Sciences & Policy*, 6(4), 79 – 108.

Sojka, J. & Giese, J. (1997). Thinking and/or feeling: an examination of interaction between processing styles. *Advances in Consumer Research*, 24, 438 – 442.

Sojka, J. & Giese, J. (2001). The influence of personality traits on the processing of visual and verbal information. *Marketing Letters*, 12(1), 91 - 106

Sojka, J. & Giese, J. (2006). Communicating through pictures and words: understanding the role of affect and cognition in processing visual and verbal information. *Psychology & Marketing*, 23(12), 995 – 1014.

Spatler, A. & Van Dam, A. (2008) Digital visual literacy. *Theory into Practice*, 47, 93 – 101.

Stathakopoulos, V., Theodorakis, I. & Mastoridou, E. (2008). Visual and verbal rhetoric in advertising. *International Journal of Advertising*, 27(4), 629 - 658.

Synodinos, N. (1991). Environmental attitudes and knowledge: A comparison of marketing and business students with other groups. *Journal of Business Research*, 20(2), 161-170. In, Mostafa, M. (2006). Antecedents of Egyptian consumers' green purchase intentions. *Journal of International Consumer Marketing*, 19(2), 97 — 126.

Tang, E., Fryxell, G. & Chow, C. (2004). Visual and verbal communication in the design of eco-label for green consumer products. *Journal of International Consumer Marketing*, 16(4), 85-105.

Tanner, C., Kaiser, F., & Kast, S. (2004). Contextual conditions of ecological consumerism: A food-purchasing survey. *Environment and Behaviour*, 36, 94-111. In, Mostafa, M. (2006). Antecedents of Egyptian consumers' green purchase intentions. *Journal of International Consumer Marketing*, 19(2), 97 — 126.

Teng, L., Laroche, M. & Zhu, H. (2007). The effects of multiple-ads and multiple-brands on consumer attitude and purchase behaviour. *Journal of Consumer Marketing*, 24(1), 27 – 35.

Todd, A. (2004). The aesthetic turn in green marketing: Environmental consumer ethics of natural personal care products. *Ethics & the Environment*, 9(2), 86 – 102.

Tversky, B., Morrison, J. & Betrancourt, M. (2002). Animation: can it facilitate? *International Journal of Human-Computer Studies*, 57, 247 – 262.

Vakratsas, D. & Ambler, T. (1999). How advertising works: what do we really know? *Journal of Marketing*, 63 (1), 26 - 43

Young, W., Hwang, K., McDonald, S. Oates, K. (2009). Sustainable consumption: green consumer behaviour when purchasing products. Sustainable Development.

Yu, J. (2006). Visual communication design strategies: Multidisciplinary human-centred approach in branding and marketing. Master of Arts Thesis, Auckland University of Technology, New Zealand.

Zhang, Y. & Buda, R. (1999). Moderating effects of need for cognition on responses to positively versus negatively framed advertising messages. *Journal of Advertising*, 28(2), 1 – 15.

Zikmund, W. (2003). *Business Research Methods*. 7th ed. United States of America, Thomson South-Western.



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APPENDIXES



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Appendix 1: Research Questionnaires



Appendix 2: Need for Cognition Scale

18 Item 'Need for Cognition' Scale

(7 – Point Likert Scale - “Strongly agree” to Strongly disagree”)

- I would prefer complex to simple problems.
- I like to have the responsibility of handling a situation that requires a lot of thinking
- Thinking is not my idea of fun.*
- I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.*
- I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something.*
- I find satisfaction in deliberating hard and for long hours.
- I only think as hard as I have to. *
- I prefer to think about small, daily projects to long-term ones.*
- I like tasks that require little thought once I've learned them.*
- The idea of relying on thought to make my way to the top appeals to me.
- I really enjoy a task that involves coming up with new solutions to problems.
- Learning new ways to think doesn't excite me very much.*
- I prefer my life to be filled with puzzles that I must solve.
- The notion of thinking abstractly is appealing to me.
- I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
- I feel relief rather than satisfaction after completing a task that required a lot of mental effort.*
- It's enough for me that something gets the job done; I don't care how or why it works.*
- I usually end up deliberating about issues even when they do not affect me personal

* Reverse scoring is used on this item.

Cacioppo, J., Perry, R. & Kao, C. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, 48(3), 306 – 307.



Appendix 3: Need for Emotion Scale

12 Item 'Need for Emotion' Scale

(7 – Point Likert Scale - “Strongly disagree” to Strongly agree”)

- I try to anticipate and avoid situations where there is a likely chance of my getting emotionally involved
- Experiencing strong emotions is not something I enjoy very much
- I would rather be in a situation where I experience little emotion than one which is sure to get me emotionally involved
- I don't look forward to being in situations that others have found to be emotional
- I look forward to situations that I know are less emotionally involving
- I like to be unemotional in emotional situations
- I find little satisfaction in experiencing strong emotions
- I prefer to keep my feelings under check
- I feel relief rather than fulfilled after experiencing a situation that was very emotional
- I prefer to ignore the emotional aspects of situations rather than getting involved in them
- More often than not, making decisions based on emotions just leads to more errors
- I don't like to have the responsibility of handling a situation that is emotional in nature.

Raman, N., Chattopadhyay, P. & Hoyer, W. (1995). Do consumers seek emotional situations: the need for emotion scale. *Advances in Consumer Research*, 22, 537 – 542.



Appendix 4: Descriptive statistics

Table 21: Descriptive statistic for scales used in Questionnaire 1.

Variable	Measure	Mean	Std Dev	Min	Max
Need for Cognition		99.3	13.4	42	126
Need for Emotion		49.6	13.5	8	80
Car / unknown brand / visual present	Attitude to advert	20.1	4.9	8	28
	Likelihood to purchase	10.6	5.1	3	21
Car / unknown brand / visual absent	Attitude to advert	19.8	5.1	4	28
	Likelihood to purchase	12.2	5.5	3	21
Bulb / known brand / rhetoric present	Attitude to advert	18.9	8.1	0	28
	Likelihood to purchase	12.5	2.2	5	18
Bulb / known brand / rhetoric absent	Attitude to advert	21.1	6.3	4	28
	Likelihood to purchase	14.9	5.4	3	21

Table 22: Descriptive statistic for scales used in Questionnaire 2.

Variable	Measure	Mean	Std Dev	Min	Max
Need for Cognition		97.9	15.1	56	125
Need for Emotion		52.2	13.7	17	79
Car / unknown brand / visual present	Attitude to advert	21.9	5.8	4	28
	Likelihood to purchase	13.7	5.1	3	21
Car / unknown brand / visual absent	Attitude to advert	19.5	7.3	4	28
	Likelihood to purchase	11.9	5.4	3	21
Bulb / known brand / rhetoric present	Attitude to advert	18.4	7.7	4	28
	Likelihood to purchase	13.9	6.1	3	21
Bulb / known brand / rhetoric absent	Attitude to advert	21.9	5.9	4	28
	Likelihood to purchase	16.9	4.4	3	21