

Persuasion in the Emerging Field of 3-D Technology

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Abstract

This study examines the role of 3-D product visualization logos in marketing. Differences between 2-D and 3-D product visualization logos were tested in the areas of affective and behavioral components of attitudes. This relationship was later tested for the moderating effects of brand personality and level of involvement.

Previous research has identified different types of 3-D technology, and has explored the consumer reactions to stereographic 3-D imaging (Holbrook, 1998), 3-D product visualization (Lee, Li, and Edwards, 2012), stereoscopic 3-D (Yim, Cicchirillo, and Dumwright, 2012), and autostereoscopic 3-D technology (Dodgson, 2005). A combination of these 3-D technologies will be applied to my research to create and test a 3-D logo. I have synthesized Aaker's 42-item Brand Personality Scale (1997), and evaluated the dimension of 'excitement' to see if the 3-D logo will be identified as more exciting than the normal 2-D logo. The Elaboration Likelihood Model is also used, and is considered a reliable resource in the field of persuasion due to its description of the central and peripheral routes of attitude change (Petty and Cacioppo, 1981). I have also considered the cognitive, affective, and behavioral components of attitudes, which have been validated and tested by Breckler (1984), when designing my study.

A casual research design guided the study and a laboratory experiment was conducted to test my hypotheses. The sample of N = 190 consists of young adults from the state of Texas in the United States of America. A 7-point Likert-scale was used to measure the affective and behavioral components of the experiment.

Key findings from the research illustrate that 3-D product visualization logos have an overall more positive effect on a subject than 2-D logos. The logos I tested were positively identified as 'exciting' in terms of brand personality, however, no differences were found in the level of excitement between the 2-D and 3-D logos. Additionally both involvement groups found the 3-D logo to be appealing, but the low involvement group found the 3-D logo to be even more appealing than the high involvement group in the area of affective measurement. Similarly, both involvement groups found the logo to be memorable and were interested to find out more about the brand, but there was no difference between the high and low involvement groups in the area of behavioral measurement. These findings could provide valuable implications to the field of logo branding, and this study has demonstrated the potential advantage to a 3-D product visualization logo in the field of marketing.

Acknowledgements

This paper is my master thesis for the conclusion of my Master program in business and economics, with a major in Marketing from Buskerud and Vestfold University College. The thesis includes research on 3-D product visualization logos, attitudes and attitude change, and brand personality. The topic was chosen because of the lack of knowledge in this specific area and the need to further explore these topics for advancement. I have always been fascinated by logos, and how the logos play such an essential role in the branding from a company's perspective.

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1. Introduction

To this day, a minimum of research has been completed in the field of 3-D technology and logos. The consumers of the world focus more on depth, and examples of this can be seen in the form of numerous 3-D movies in the cinema and 3-D TVs finding a commonplace in more homes across the world. Because of this, researchers have increased motives to find out more about the impact a 3-D logo can have in this society. Marketers have an endless list of opportunities in the technology era that we live in, and 3-D is one area that has been increasingly accepted. For example, almost all large blockbuster movies now air in 3-D, and customers either bring their own 3-D glasses or loans them from the theater. So while media and entertainment has explored the possibilities in these areas, one field that has yet to be delved into is advertising in 3-D. Companies spend thousands, and sometimes even millions of dollars, on their logo (“Famous logo designs and how much did they cost?”, 2012, August 7), but these companies are not investing money towards a 3-D logo. This might actually be due to the fact that it is such an undiscovered field that companies feel intimidated to take a chance on 3-D. Therefore I feel that it is important to take steps towards increasing the knowledge in this field, so that marketers can make the right decisions when it comes to 3-D technology and how this field can be applied.

One type of 3-D technology that has been more frequently used for online shopping is the 3-D product visualization technique (Lee, Li, and Edwards, 2012). This technique gives off the illusion of depth to the potential customer by allowing them to inspect a product before buying it. In testing for effects that a 3-D logo could have, this type of technique would be a great starting point as it is easier to test than autostereoscopic or stereoscopic 3-D techniques. It requires less equipment from both the presenter and the receiver, indicating that there is no need for any glasses or special projecting devices in order to experience the 3-D image.

Aaker came forward with a ground breaking idea in 1997, suggesting that brands have personality traits just like humans do. She created a scale of five different brand personalities and paired famous brands with these. This model has been re-tested many times, and although the results have varied, one thing that has prevailed throughout all of the testing is that a brand does in fact have personalities and potential customers identify brands with these. One essential part of the branding for a company is the logo. It is what represents the company, it is what customers identify the company with, and it is their face towards the

masses. Many questions about branding ask how much the logo affects the personality of a brand, and no one has addressed if brand personality can be enhanced by using new 3-D technology for the logo. Take for example the brand personality of excitement; this personality speaks innovation and spirit. It is also identified with being daring and up-to-date. Could a company with excitement as their mantra strengthen that personality by adding a logo that exemplified just that? Building a logo with 3-D technology is innovative and up-to-date, since it is using a new technology that is yet to be ordinary on the market.

In 1984, Breckler conceptualized our attitudes into three different components. These were the cognitive, affective, and behavioral component. These three components guide our attitudes, and also measure how and when these attitudes change. Marketers have used their knowledge about these attitudes for decades, and research has contributed more and more knowledge about how a potential customers attitudes work. Specifically, the Elaboration Likelihood Model created by Petty and Cacioppo (1981), has been central in how our attitudes can change and how we process the different types of information presented to us in advertisements that are all around us. How well affected we are by the advertisement is to a high degree guided by our involvement. In literature involvement has been presented at two extreme outer positions, the low involvement group and the high involvement group. These two groups have been tested on different cues and advertisements, and today there is a predicted pattern that each of these groups follow. The part that I am interested in addressing is how these two groups might differ when presented with a 3-D logo. This has yet to be tested for in existing literature.

What I will seek to investigate is the relationship that 3-D product visualization logos will have on already accepted and well-known literature, and how companies can use this technology to their advantage. To summarize the purpose of my study, I have created three questions that will guide me through this thesis. The questions are as follow:

- 1. When a logo is presented using 3-D product visualization technique, does this affect the affective and behavioral components of attitudes?*
- 2. When a logo is presented using 3-D product visualization technique and is accompanied by a brand personality, does this affect the affective and behavioral components of attitudes?*

3. *When a logo is presented using 3-D product visualization technique to an either high involvement group or low involvement group, does this affect the affective and behavioral components of attitudes?*

1.1 Structure of the thesis

Chapter 1 provides a general introduction to the chosen topic, and presents the research questions. Chapter 2 gives a theoretical review of the relevant literature for the thesis, followed by chapter 3 which includes the development of hypotheses and the conceptual framework. In chapter 4, methodology and the selected research design is presented and discussed. Chapter 5 describes the validity and reliability of the thesis, and the results from the experiment are presented. Chapter 6 will complete this thesis by discussing the findings followed by managerial implications, limitations, and propositions for further research.

2. Theoretical Review

In this chapter of my thesis I will review current literature on three essential fields; 3-D logos, attitudes and attitude change, and finally brand personality. In each field I will thoroughly discuss current literature and the criticism they have received. Finally, in the last part of this chapter I will present my hypotheses and the expected research model.

2.1 Stereoscopic 3-D Logos

To this date, very little research has been conducted on the topic of three-dimensional (3-D) logos. One of the biggest obstacles in the field of 3-D research is to differentiate varying types of 3-D technology from one another. The inaugural study involving 3-D technology research was applied to photographs, and is referred to as stereographic 3-D imaging (Holbrook, 1998). The research in this field focuses on the various aspects of photographic techniques and how to enhance the illusion of depth in photography. The second type of research that has been conducted in this field involves the application of 3-D techniques to online advertising formats. It is referred to as 3-D product visualization (Lee, Li, and Edwards, 2012). These studies focus on the effects of 3-D when selling online products, by allowing the potential customer zoom in and out of a 3-D picture of a product, and rotate it for examination before online purchase. The third and final study focuses on the 3-D techniques that a 3-D screen provides, such as a 3-D TV or cinema, by allowing the consumer to experience what is called semi-immersing capabilities. Visualization of the 3-D images can be achieved by providing subjects with 3-D glasses through which to view an advertisement- referred to as stereoscopic 3-D, (Yim, Cicchirillo, and Drumwright, 2012), or by allowing the subjects to see an advertisement that is projected by 3-D devices- referred to as autostereoscopic technology (Dodgson, 2005). To this date, there is no research that focuses on logos in the area of 3-D product visualization or any of the types of stereoscopic 3-D. In my thesis I will focus on a combination of the 3-D technologies to create a logo and test it, however I urge researchers to continue with studies regarding logos in the field of stereoscopic and autostereoscopic 3-D techniques. Further, I will discuss the key aspects of various types of 3-D technologies, and then summarize how I will use these different 3-D technologies to create a logo to be tested.

The definition of stereoscopic 3-D advertising can be found in Yim, Cicchirillo, and Drumwright's study (2012, p. 113) and explains it as: "*...computer-simulated advertising that allows consumers to experience floating, three-dimensional visualizations of the product*

that have true depth off screen”. This description provides guidance when defining stereoscopic 3-D logos, although I would suggest replacing the word ‘product’ with ‘logo’ to encompass a more complete concept of a stereoscopic 3-D logo. Table 1 below shows definitions for each of the types of 3-D technology, and where it is used today. Customer action is also listed, and can be defined by how much a customer or viewer needs to participate to achieve the desired 3-D effect.

Table 1 - Overview of different approaches to 3-D technology

3-D Technology	Medium	Technology Idea	Key Features	Needed Customer Action
3-D Imaging	Images/ Pictures	Enhance illusion of depth in a picture	Use different angles when taking the pictures	Little action needed from customer
3-D Product Visualization	Internet Advertisement	See the product in every detail before buying it online	Zoom in and out, turn the product around	Full interaction needed from customer
Stereoscopic 3-D	TV Screens/ Cinemas	Give a feeling of being semi-immersed into another setting	See media with the feeling of ‘being there’, with effects of people, goods, and others coming out from the screen	Little action needed from customer, except wearing glasses
Autostereoscopic 3-D	TV Screens	Give a feeling of being semi-immersed into another setting	See media with the feeling of ‘being there’, with effects of people, goods, and others coming out from the screen	Little action needed from customer, except wearing glasses

One article written by Yim, Cicchirillo, and Drumwright (2012) is paramount to 3-D technology research. This is due to the fact that the authors test the differences between a normal 2-D advertisement against a stereoscopic 3-D advertisement. In the experiment they

observe for different effects between the methods called stereoscopic 3-D, autostereoscopic 3-D, and what they refer to as flat 3-D advertising. The flat 3-D is essentially a normal 2-D view. Today this is one of the only studies that tests for stereoscopic and autostereoscopic 3-D effects on advertising. The autostereoscopic 3-D scored significantly higher than the 2-D on all variables tested, with ‘presence’ and ‘enjoyment’ as the highest factors that affect advertising. The variable ‘presence’ explains the occurrence when a subject experiences a sense of being there with the product, or has the feeling of being involved in the product’s environment. ‘Product knowledge’ and ‘advertising attitude’ scored the lowest out of the factors that affect advertising, but still yielded significant results. The results showed that stereoscopic 3-D advertisement was not as effective as autostereoscopic 3-D, but still had a more favorable response than the effects of 2-D advertising. The researchers found that there were no significant effects for purchase intention and perceived product knowledge between the three different methods of 3-D advertising that were tested. Due to the fact that this study demonstrated overall significantly better results for 3-D advertisements when compared to that of the 2-D advertisements, the study should be re-created with logos to observe the implications of 3-D effects in that particular area.

An additional factor that could have affected the results of the study completed by Yim, Cicchirillo, and Drumwright (2012), is possible discomfort experienced by the test subjects. Some subject were required to maintain a specific position and viewing angle in relationship with a 3-D projection screen to properly view the 3-D, while others were required to use 3-D glasses, and both of these experiences have the potential to cause discomfort. The overall results suggests that the discomfort associated with the use of the glasses ultimately made autostereoscopic 3-D advertising more effective than stereoscopic 3-D advertising. Yim, Cicchirillo, and Drumwright (2012) found two moderators as well. They tested ‘novelty advertisement’ and ‘cybersickness’ while measuring the participants’ experiences. Novelty advertisement is defined as: “*advertising that includes unique, unusual, and different content or design that distinguish it from other advertising*” (Yim, Cicchirillo, and Drumwright, 2012, p. 116), while cybersickness is similar to motion sickness and is caused when a subject is perceiving that he or she is moving and is getting sick. Based off of the experience of the subjects, they were then categorized into groups that reflected if the participant had experienced high or low novelty advertisement, and high and low cybersickness. The authors found a connection between low moderators and high positive autostereoscopic and stereoscopic 3-D effects. This means that the lower the novelty and

cybersickness are the higher effects 3-D will have. It was not found that the opposite can be applied, and high novelty and cybersickness has not been shown to lower 3-D effects.

Another aspect to consider is the difference between how geometrical and material products are experienced and evaluated by participants. Geometrical products are evaluated through the subjects' visualization, while material products are evaluated via the subject touching it (Debabbi, Daassi, and Baile, 2010; Li, Daugherty, and Bocca, 2002). In the articles written by Debabbi, Daassi, and Baile (2010) and Daugherty and Bocca (2002) both sets of authors have used a watch as a geometrical product and a coat as a material product for their research. In my studies I will use logos instead of products, but the geometrical product evaluation is consistent with how a subject would evaluate a logo since subjects evaluate logos through visualization. Therefore the results from a geometrical product are taken into account for my research. The findings in Debabbi, Daassi, and Baile (2010) support that the geometrical products in a 3-D product visualization context, are significantly better for the variables 'belief strength', 'belief confidence', 'attitude' and 'attitude confidence', as opposed to products advertised in a static 2-D mode. Another finding in 3-D product visualization is that the 3-D technology led subjects towards a more favorable brand attitude, both in accessibility and confidence (Lee, Li, and Edwards, 2012). Sub sequential research by Li, Daugherty, and Bocca (2002) supports this finding. This is highly relevant for a study in branding because a logo depicts the most memorable representation of a brand. The logo is the trademark that follows every product and service of a company. Lee, Li, and Edwards (2012) even link purchasing behavior towards the brand accessibility and confidence, and argue that through a 3-D product visualization, marketers can achieve higher purchasing behavior from their advertisement. Li, Daugherty, and Bocca (2002) get positive results for the connection between 3-D product visualization and the variables 'presence', 'product knowledge', 'purchase intention', as well as 'brand attitude' mentioned above.

The findings discussed above suggest that certain variables can be found for 3-D effects across different techniques and technologies since they are found when applied to product visualization, autostereoscopic, and stereoscopic technology. The variable 'presence' was found across all three groups (Yim, Cicchirillo, and Drumwright, 2012; Li, Daugherty, and Bocca, 2002), while 'purchase intention' and 'product knowledge' was only found in autostereoscopic 3-D (Yim, Cicchirillo, and Drumwright, 2012) and 3-D product visualization (Li, Daugherty, and Bocca, 2002). It is important to note that logos cannot be measured on exactly the same variables as products, so it is necessary for further research to

use variables that are more applicable to logos. However, by referencing earlier results from other 3-D studies, it seems suitable to use variables that can be applied across the previously studied technologies. One central limitation of Lee, Li, and Edward's study (2010) is that the authors used only one product, a camera, for their research. Neither Yim, Cicchirillo, and Drumwright (2012) nor Li, Daugherty, and Bocca (2002) used multiple options across product groups with their watch and coat experiment. Further research should validate the findings to see if they are applicable across other product groups as well as logos.

Holliman et al. (2011) recommends different approaches in 3-D viewing for different types of screens. They recommend using individual 3-D glasses for each user in cinemas because of cost, but go on to recommend 3-D technology that does not require the subject to wear 3-D glasses for advertisement, 3-D TV display, 3-D desktop display, and 3-D portable display. The reasoning behind this recommendation for autostereoscopic 3-D is supported by the idea that it leads to long-term success and viewing freedom. Another advantage that Holliman et al. (2001) acknowledges is that autostereoscopic 3-D simplifies the experience of the subjects because they do not have to keep up with the 3-D glasses in order to have a 3-D viewing experience. The authors also argue that screens with the possibility of switching between autostereoscopic and regular display are seen as highly attractive. Further research should keep these results in mind when testing for 3-D effects on different screens.

I will use a combination of all 3-D techniques when designing my study, and focus on a 3-D logo where the customer does not need to interact by zooming in and out on the logo, since I do not see any important implications of this. Instead I will focus on a logo that gives off true depth in 3-D, without giving the same feeling of the logo coming off the screen as a stereoscopic or autostereoscopic logo would do. If we go back to the definition of stereoscopic 3-D logos, "*...computer-simulated advertising that allows consumers to experience floating, three-dimensional visualizations of the product that have true depth off screen*", I would, as suggested, switch out the word product with logos. This definition provides an adequate start for what I am working towards. For the purpose of this study, I would make a revision to the definition because I will not test the "*true depth off screen*", but will rather test a logo that alternatively gives depth on screen.

2.2 Brand Personality

In 1997, when Aaker wrote her article about brand personality, little research had been done about consumer behavior, brands, and brand personality. Therefore her article has been essential to the development of brand personality. She was not the first to write about the human traits of a brand, but her research was the first to conceptualize a theory about the topic. Aaker (1997, p. 347) use the following definition to describe brand personality: “*the set of human characteristics associated with a brand*”. Today this definition is widely used and accepted, but also criticized by some (e.g. Azoulay and Kapferer, 2003). Further discussion of this concept will continue later.

In Aaker’s article (1997) she found five brand personality dimensions which are: ‘sincerity’, ‘excitement’, ‘competence’, ‘sophistication’, and ‘ruggedness’. The dimensions are made up from 42 traits, and she calls her theory the 42-item Brand Personality Scale. In her studies, Aaker (1997) bases some of her research on the ‘big five’ personalities in human psychology. The ‘big five’ is a theory about human personality, and researchers have agreed that there are five different personalities. These consist of: ‘extraversion’, ‘agreeableness’, ‘conscientiousness’, ‘neuroticism’, and ‘openness to experience’ (McCrae and Costa, 1990). Aaker (1997) used this research to find different personality traits, and this resulted in a list of 309 personality traits. The list was first reduced to a more manageable number of 114 by asking respondents to rate the different personality traits, and only using the ones with a score higher than six on a Likert 7-point-scale. Thereafter, Aaker used facets to determine which three personality traits added the highest item-to-total to the dimensions. This left her with 45 personality traits, and she dropped three more traits after a low test-retest correlation. All of the five dimensions themselves are therefore explained by two to four facets, which again are explained by two to three personality traits. As mentioned above, the five dimensions that Aaker (1997) found after her research are ‘sincerity’, ‘excitement’, ‘competence’, ‘sophistication’, and ‘ruggedness’. In the figure below there is an overview of the most significant facets for each dimension.

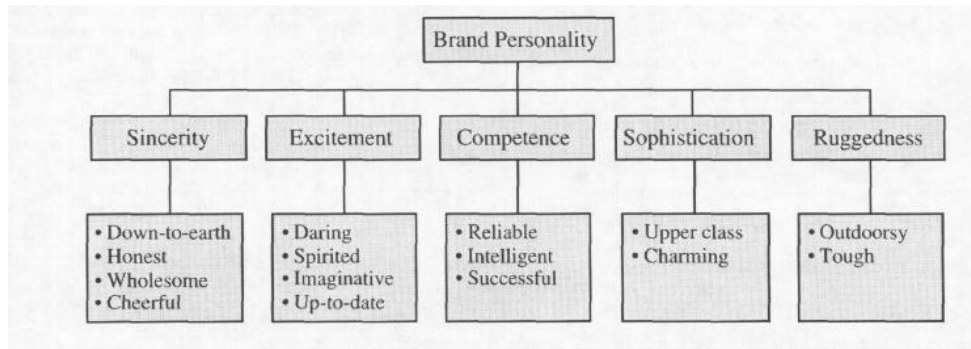


Figure 1 - Aaker's Brand Personality Scale (1997, p. 352)

Some of the harshest critics of Aaker's work (1997) are Azoulay and Kapferer (2003) who state that Aaker is confused about the difference between brand identity and brand personality. The reasoning behind Azoulay and Kapferer's criticism (2003) is that they argue that the brand identity scale does not in fact measure brand identity, but it measures brand personality. They go on further and state that personality is in fact part of brand identity, amongst other dimensions. Azoulay and Kapferer (2003) point out some of the most problematic items in the scale, and conclude that the items 'competence', 'feminine' 'western'/'small town', and items related to social class, do not conceptualize the pure concept of personality. These items are therefore irrelevant. They also criticize the definition of brand personality, and propose a new definition instead: "*brand personality is a set of human personality traits that are both applicable to and relevant for brands.*" (Azoulay and Kapferer, 2003, p. 151). They argue that the current definition is too wide, and therefore includes concepts unrelated to brand personality. This results in a non-exact measurement of the topic. For example, the current definition accepts concepts such as social class, intellectual abilities, and gender, and Azoulay and Kapferer (2003) argue that these should not be included in Aaker's scale (1997).

Aaker's work (1997) has also been criticized for its generalizability. In the article Aaker (1997, p. 353) explains that her "*42-item Brand Personality Scale is reliable, valid, and generalizable.*" Contrary to this, a critique written by Austin, Sigauw and Mattila (2003), questions the generalizability of the study. Their argument is that Aaker has been using aggregated data across a product group instead of looking at individual brands. In Austin, Sigauw and Mattila's article (2003) they use Aakers' framework (1997) for their own study, but cannot come to the same conclusion on the base of individual brands or aggregated data across the product group. One of the main differences between these two studies is that while Aaker (1997) use a wide specter of brands, Austin, Sigauw and Mattila (2003) only use

restaurants for their study. Another difference is in the samples they have used, where as Aaker (1997) uses a large variation in education, age, location, etc. while Austin, Sigauw and Mattila (2003) only use students from one school. Other studies have also used Aaker's framework (1997) and have reached similar results. For example, Davies et al. (2001) collected the same five dimensions as Aaker (1997), but with weaker results. Specifically, in Davies et al. (2001) study, 'ruggedness' scored lower than in Aaker's study (1997), and Davies et al. (2001) argue that this can be because Levi Strauss sponsored Aaker's work. Levi's Jeans is the only brand that is tested in all of the brand groups in the original work, and therefore they argue that 'ruggedness' has emerged because of this. Venable et al. (2005) tries to use Aaker's dimensions (1997) in their study of nonprofit organizations, and concludes that only two dimensions from Aaker, 'sophistication' and 'ruggedness', could be used. The reasoning behind this is the need for dimensions based on trust and nurturance is of higher importance for nonprofit brands (Venable et al., 2005). I have decided to not include the results from Venable et al. (2005) in my further research since the concepts were quite different with the nonprofit organizations.

Another problem about the generalizability of Aaker's research is that some of the dimensions change across different cultures. Aaker (1997) points out this weakness in her study, and Davies et al. (2001) also acknowledges this as a weakness in their study of corporate reputation in Great Britain. In 2001 Aaker, Benet-Martinez, and Garolera, studied how the dimensions changed in Spain and Japan compared to the original studies that were done in the United States of America. What they found was that three of the dimensions did not change across cultures, and these were 'sincerity', 'excitement', and 'sophistication'. The Japan study also used 'competence', but substituted 'peacefulness' for 'ruggedness'. Spain on the other hand did not use 'competence' or 'ruggedness', but instead used 'passion' and 'peacefulness' (Aaker, Benet-Martinez and Garolera, 2001). Rojas-Méndez, Erenchun-Podlech and Silva-Olave (2004) also conducted a study with Aaker's dimensions (1997) in Chile and came to the conclusion that 'ruggedness' could not be used, while the other of Aaker's dimensions could be adequately studied. Ekinici and Hosany (2006) tested Aaker's scale (1997) in a tourist destination study in United Kingdom, and concluded that sincerity, excitement, and conviviality are the dimensions that were supported. However, a problem with this study is that they mixed up the personality traits from the original in Aaker's study (1997). For example the dimension 'sincerity' is a mixture of sincerity and competence, 'excitement' a mixture of excitement and sincerity, and 'conviviality' is a mixture of sincerity

and sophistication. Therefore, my conclusion is that Ekinci and Hosany's study (2006) shuffles the original dimensions too much to be relevant in my research. The results after using Aaker's scale (1997) across different cultures is that there are existing cultural differences, and that only three of the dimensions withstood the cultural test. These three are 'sincerity', 'excitement', and 'sophistication'. All of the results discussed in this chapter are found in the table below.

Table 2 - Overview of research on brand personality

Authors	Country Tested	Variables Supported	Product group
Aaker (1997)	United States	Sincerity, Excitement, Competence, Sophistication, Ruggedness	Retailing, Automobiles, Financial Service
Aaker, Benet-Martinez and Garolera (2001)	Japan	Sincerity, Excitement, Competence, Sophistication, Peacefulness	Retailing, Automobiles, Financial Service
	Spain	Sincerity, Excitement, Sophistication, Passion	Retailing, Automobiles, Financial Service
Davies et al. (2001)	Great Britain	Sincerity, Excitement, Competence, Sophistication, Ruggedness	Retailing, Financial Service, Business-to-Business
Austin, Siguaw and Mattila (2003)	United States	Sincerity, Excitement, Competence, Sophistication, Ruggedness	Restaurants
Rojas-Méndez, Erenchun-Podlech and Silva-Olave (2004)	Chile	Sincerity, Excitement, Competence, Sophistication,	Automobiles
Venable et al. (2005)	United States	Sophistication, Ruggedness, Integrity, Nurturance	Nonprofit Organizations
Ekinci and Hosany (2006)	Great Britain	Sincerity, Excitement, Conviviality	Tourist Destinations

Even though Aaker's work (1997) has been criticized, it is still the most substantial scale developed for brand identity. It is also well used in a myriad of literature and is well accepted. I have taken into account the cultural differences, and therefore chose to only use one of Aaker's dimensions (1997). I will only use the dimension of 'excitement' in my studies, and see if the 3-D logo can be identified as more exciting than the normal 2-D logo. Since a logo is an important part of branding, I will see if this actually makes an impact. A company who is creating a logo should achieve an exciting brand personality that is seen as more daring, spirited, imaginative, and up-to-date, by using uncommon items in their logo designs such as the implementation of a 3-D logo.

2.3 Attitudes and Attitude Change

The attitudes field of study has been well researched and defined in several ways. One of the most common definitions of attitudes is: *"a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor."* (Eagly and Chaiken, 1993, p. 1). This definition is very broad, so to further define attitude I will include another definition which states attitude is: *"a relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols"* (Hogg and Vaughan, 2005, p. 150). Both of the definitions focus on a personal feeling towards a particular entity, which can be positive, negative, or neutral. The reason that attitudes are of interest in the field of advertising is that they influence and determine the behavior of a person (Petty, Wheeler, and Tormala, 2003). To fully understand an attitude, one needs to understand the three components of attitudes. The cognitive, affective, and behavioral components of attitudes are validated and tested by Breckler (1984). The cognitive component is one's belief and knowledge toward a specific entity. This can be tested in with brand knowledge and recall of information. The affective component is one's feelings or emotions towards this entity. This can be measured by the degree in which the subjects find a logo enjoyable and how substantially they like it. The behavioral component is how the attitude makes a person act in specific situations. This can be measured through purchase intention or intention to find out more about a specific logo. The important factor is the intention to act or the act itself, where the subjects find a logo so appealing and interesting that they would spend time finding out more about it. There have been many studies to see if there is a possibility to change the pre-existing attitudes a person has and how to accomplish this. I will use one of the most widely used models in persuasion and attitude change in my further research- the Elaboration Likelihood Model.

The Elaboration Likelihood Model (ELM) has been accepted and used by researchers in the field of persuasion and attitude change since first introduced by Petty and Cacioppo in 1981. It is still used today and found applicable to new technology, such as the internet (Cho, 1999) and online shopping (Warden, Wu, and Tsai, 2006). Both of these authors propose some small moderations to the ELM, but the ideas and theory behind it are still intact. Petty and Cacioppo (1981) claim that there are two routes to persuasion and attitude change; one called the central route and the other the peripheral route. The central route can be used to persuade when a person is an active participant by being highly involved in a process and has the motivation to listen. He or she must also have the ability to understand and process the issue-relevant information presented. This person has a thoughtful consideration of the arguments, content, and ideas. An example of a highly motivated person is someone who is going to buy the product shown in advertisement. This person will most likely pay more attention to the advertisement since he/she has personal involvement in the product. When the person's motivation and involvement are low, then the peripheral route is the better alternative to evoke persuasion. This person is neither motivated nor able to understand the issue-relevant information, but respond to other cues. Examples of other cues are the quantity of arguments, experts or celebrities presenting the information, or if the information is presented in an appealing way (Petty and Cacioppo, 1981; Cacioppo and Petty, 1984). In the beginning stages of the development of the theory and model, the authors do not specify if these two routes are the only choices. But in their latter work, they first hint about it being a continuum (Petty, Cacioppo, and Schumann, 1983), and later point this out explicitly (Cacioppo and Petty, 1984). Further, they argue that the central and peripheral routes are the extreme positions on this continuum, ranging from high to low elaboration likelihood, instead of being the only two choices. However, the subjects in most research are classified into a low or high involvement group, and therefore subjects who fall somewhere in between these two points and would be categorized in the moderate levels are not well tested. In Petty and Cacioppo (1984a) they summarize the research done so far regarding the case of those subjects whose level of involvement is moderate, and argue that this will lead people to look towards the source factors to help them decide how much they want to think about the information presented. The source factors tested were attractive presenters and experts. High involvement groups opt for thoughtful consideration of the facts to form their opinions, while people in low involvement groups lean towards source cues instead of thinking to be persuaded. In moderate cases subjects use the source factors to help them decide if they want to process the information at all. In the end, after using the source message to process their

decision, subjects conclude that the message and information is worth processing and thinking about and fall into the central route of persuasion, or they conclude it is not worth processing and thinking about and end up in the peripheral route. The source factors that encourage thinking the most are an attractive or expert source presenting the persuasive message (Petty and Cacioppo, 1984a).

Over the years researchers have explored further research on the Elaboration Likelihood Model and have expanded it. Specifically, the authors Petty and Cacioppo have suggested several changes to the model that have been accepted by most researchers, and the Elaboration Likelihood Model is as central today as when it was first proposed. I will now go through the additions and confirmations that have validated the model in a higher degree. The first addition that Petty and Cacioppo (1981b) made was how source information and the quality of the arguments influence people with high or low involvement. The findings support their previous argument that the high involvement group is more interested in the quality of the arguments, rather than who the source of the information is. Low involvement groups responded better to attractive persuaders and the credibility of the information, and did not have as positive responses to persuaders that the audience perceived as less attractive or information perceived as less credible. These findings are also supported by Petty, Cacioppo, and Goldman (1981) and Petty, Cacioppo, and Schumann (1983) that confirm that the information source is more important than argument quality for the low involvement group. Both articles found that a famous endorser has a high influence on the low involvement group, but does not make any remarkable impact on the high involvement group. Further Petty and Cacioppo (1981) propose that changing attitudes via the central route is hard since the person must have personal involvement, and at the same time be presented with strong arguments that the recipient of the message has the ability to understand. They therefore propose that it is easier to change the temporary attitudes via the peripheral route, and use cues in later settings to reinforce the message (Petty and Cacioppo, 1981). In later research Petty and Cacioppo (1984b) argue that attitudes as a result of the central route may be more predictable, stable, and long lasting than those formed through the peripheral route. The reasoning for this is that persuasion through the peripheral route is only giving temporary attitude changes to low involvement persons, and these temporary attitude changes need constant cues. This was also confirmed in a later study by Cacioppo et al. (1986), which argues that people with a high need for cognition are affected by the central route when

persuaded, and they found evidence that their behavior was easier to predict than those with a low need for cognition who are persuaded by the peripheral route.

Another interesting finding made by Petty, Cacioppo, and Heesacker (1981) indicated that rhetorical questions have an influence on attitudes when the group of participants have high involvement and the arguments presented are weak, or when the group of participants is made up of low involvement individuals and the arguments are strong. Additionally, the degree of persuasion decreased remarkably when strong arguments were presented as a rhetorical question, in comparison to strong arguments presented as a statement. Petty and Cacioppo (1984b) explained and extended the Elaboration Model of Persuasion even further with their research about the argument quality and quantity. The central finding in the article was that people with high involvement were not influenced by the quantity of the arguments, but rather the quality of the arguments. For the low involvement group the opposite was found. The quantity of the arguments, which were not influenced by the argument quality, was the most effective persuader of attitudes. Another very interesting finding that shows similarities to Petty and Cacioppo's original work (1981) is Chaiken's work (1980). Chaiken (1980) does not use the central and peripheral routes of perception to define her research, but instead uses heuristic versus systematic information processing. The description for systematic information processing is when participants "*actively attempt to comprehend and evaluate the message's arguments, as well as to assess their validity in relation to the message's conclusion.*" (Chaiken, 1980, p. 752). This is a similar description to the central route defined by Petty and Cacioppo (1981). In the definition offered in Chaiken's (1980) study, the subjects need to comprehend and evaluate the message's arguments, whereas subjects need the ability to understand and listen to a message's arguments in the definition suggested by Petty and Cacioppo (1981). I found similar resemblances between heuristic information processing and the peripheral route, as both descriptions focus on the message sources and non-content cues. Celebrities, experts, and how the advertisement looks are specified as affecting factors in both studies. Chaiken (1982 cited in Cacioppo and Petty, 1984, p. 673) actually points out the similarities and draws a connection between the central route and systematic information processing, and peripheral route and heuristic information processing. However the comparison of the peripheral route and heuristic information processing is not as comparable since the peripheral route includes more approaches in the attitude and persuasion literature than the heuristic information processing does. This

includes attitude models with a classical and operant conditioning, and also motivational orientations in the persuasions theories.

The Elaboration Likelihood Model has also been criticized by other researchers. Bitner and Obermiller (1985) have made thoroughly researched suggestions about the Elaboration Likelihood Model and its hindrances and restrictions. They insure these steps are not critiques, but rather steps that would extend the model and its understanding. First, the authors break down the limitations into five different questions. The first limitation they recommend further research on is the lack of differentiation between the peripheral and central cues. Today there is no difference between these, and therefore it is hard for marketers to know which cues to use for the different persuasion routes. One reason behind this is that the model does not help marketers predict the motivational state the audience will be in, and therefore it does not have the ability to predict if the potential customer will be in a high or low involvement situation. The second limitation asserts that there are differences in peripheral processing, and that these mechanisms function separately. Therefore the authors suggest that the Elaboration Likelihood Model must separate between the different peripheral processes. They exemplify this by claiming negative physical appearance is not a cognitive short cut, but rather an affective response to the situation. The third limitation is that there is insufficient proof that centrally processed attitudes are more durable and easier to predict, and that the earlier findings of Petty and Cacioppo (1984b) are not sufficient enough to suggest this since this research was done post hoc. Additionally, there are those who oppose the idea that attitudes directly based off of affective responses are the most durable. The fourth limitation is that there are situations where the two routes can be interactive, instead of alternatives to each other, and that marketers can use peripheral cues to alter and strengthen the central processing. The fifth and last limitation Bitner and Obermiller (1985) present occurs when the subjects use peripheral cues for the central processing. Some situations do not have sufficient information for the person to process, and therefore he/she must use the peripheral cues that exist. The person may be highly motivated and have the ability to process messages, but there are no messages to process. In these situations people would use the peripheral cues for their central processing. Another concern regarding this inquires if the attitudes formed this way would be as durable and predictable as the other centrally processed attitudes. Ultimately, the authors suggest further research for the Elaboration Likelihood Model to make it more predictable in other situations. Bitner and Obermiller (1985) also suggest additional variables that should be researched, and list these as situational variables,

personal variables, and product category variables. Of these, a personal variable that has been labeled 'need for cognition' has already been addressed by Cacioppo et al. (1986), while the others have not been addressed at this point according to a future reference search on Web of Science.

Cole et al. (1990) summarizes three different replications of studies that try to replicate the Elaboration Likelihood Model of Petty, Cacioppo, and Schumann (1983). An interesting point of this summary is that none of the three studies were able to replicate the original study's results, and therefore Cole et al. (1990) questions the generalizability of the model across product groups, source information, and source arguments. Cole et al. (1990) have used argument quality, source credibility, and involvement in their studies, and a variable that Petty, Cacioppo, and Schumann (1983) did not use: product involvement. They only found effects of argument quality results in the two first studies, but not any other variable. The last study found an effect for source credibility, but only for the high involvement group. Some of the differences between these studies and the original are the inclusion of product involvement, differences in involvement, small differences in products used, and also that the ad in the original study included in depth arguments while the replica used less information and arguments. Cole et al. (1990) indicates that small procedural variation should not make the model less effective and predictable. Further, they question the same aspect of the model as Bitner and Obermiller (1985); finding the difference between peripheral and central cues. This is one of the most central limitations to the Elaboration Likelihood Model.

Even with this critique about the model, the Elaboration Likelihood Model has been accepted and used for over 30 years. This is an adequate endorsement for its usability in research, and therefore I will use it further in my studies. The basic rationale behind using the model is to prime some subject into a low involvement and some into a high involvement, and to measure the different attitudes they have towards my 3-D logo. I will see if the 3-D logo will work as a peripheral cue and influence the low involvement group more than the high involvement group. The reasoning behind this is that a logo counts more towards the appeal of the advertisement, and therefore is a peripheral cue.

3. Conceptual Framework

In this part of my thesis I will present my research model and the hypotheses. I will start with a review of each of the hypotheses and the suggested relationship between the variables, and then I will end with the suggested research model.

3.1 Relationship between 3-D logos and Attitude

Previous research has identified different types of 3-D technology, and has explored the consumer reactions to stereographic 3-D imaging (Holbrook, 1998), 3-D product visualization (Lee, Li, and Edwards, 2012), stereoscopic 3-D (Yim, Cicchirillo, and Dumwright, 2012), and autostereoscopic 3-D technology (Dodgson, 2005). A combination of these 3-D technologies will be applied to my research to create and test a 3-D logo. Drawing on Yim, Cicchirillo, and Dumwright's study (2012) that found that autostereoscopic 3-D scored significantly higher than 2-D on all variables tested, I argue that the 3-D logo used in my experiment will also show significantly higher scores when compared with control logo. Debabbi,

Daassi, and Baile (2010) and Li, Daughtery, and Bocca, (2002) indicate that geometrical and material products evoke different experiences from participants, and I will consider these findings when creating my experiment because a logo is consistent with a geometrical product and respondents should therefore have similar experiences to this previous study. Further findings from Lee, Li, and Edwards (2012), link purchasing behavior to brand accessibility and confidence, and argue that with 3-D product visualization marketers can achieve more favorable purchasing behavior. This could indicate that my experiments using 3-D product visualization logos may support similar findings, and that a consumer's intention to find out more about a logo could be increased, just as purchasing behavior was increased in their study. While the variables used to measure products cannot be directly applied to logos, references to these earlier studies could provide adequate research strategies to my experiment.

I will use inspiration from Yim, Cicchirillo, and Drumwright's (2012) testing, by using their 'enjoyment' variable as part of my affective component. Enjoyment is an essential part of our affective component of attitudes since this is our emotions and feelings. Enjoyment has historically been used as a variable, and therefore I would like to re-create the findings surrounding enjoyment for autostereoscopic and stereoscopic 3-D products and

apply it to 3-D product visualization logos. I will also take into consideration the cognitive, affective, and behavioral components of attitudes which have been validated and tested by Breckler (1984). Due to the fact that my experiment will be testing a logo that has never been seen before, I will measure my respondents in the areas of affective and behavioral attitudes. The cognitive attitudes would be challenging to draw conclusions from due to the fact that they will have no exposure to the logo previous to the experiment.

I therefore suggest these two hypotheses for the relationship between 3-D product visualization and attitudes:

H1a - 3-D Product Visualization logos will score higher than 2-D logos in affective attitudes.

H1b - 3-D Product Visualization logos will score higher than 2-D logos in behavioral attitudes.

3.2 Relationship between Brand Personality, 3-D logos, and Attitude

I will synthesize Aaker's 42-item Brand Personality Scale that found five brand personality dimensions which are sincerity, excitement, competence, sophistication, and ruggedness (1997). In my study I will evaluate the dimension of 'excitement' to see if the 3-D logo will be identified as more exciting than the normal 2-D logo. Aaker's brand personality scale (1997) is applicable to my study because logos are an influential part of branding. In addition, the affective and behavioral components of attitudes will have a positive effect on the subjects' feelings about a logo being exciting. One of the reasons that will contribute to the logo being seen as more exciting is that 3-D product visualization for logos do not exist in a high degree in today's advertising and should therefore be experienced as something new, up-to-date, and imaginative. In my research, my predictions are that the brand personality will moderate the relationship between 3-D product visualization and the two attitude components, affective and behavioral. The rationale for this is by priming the subjects to think about a brand as exciting, they should also feel more positively about the logo being exciting.

I therefore suggest one brand personality hypothesis, and two moderation hypotheses for the relationship between brand personality, 3-D product visualization, and attitudes:

H2a - There will be a stronger Brand Personality 'Excitement' score for the 3-D product visualization logo than the 2-D logo.

H2b - The Brand Personality 'Excitement' will positively moderate the relationship between

3-D Product Visualization and affective attitudes.

H2c - The Brand Personality 'Excitement' will positively moderate the relationship between 3-D Product Visualization and behavioral attitudes.

3.3 Relationship between Involvement, 3-D logos, and Attitude

The Elaboration Likelihood Model is tightly linked to attitudes and attitude change. This model has been relevant to advertising effects for multiple decades, and it would therefore be interesting to see the effects of a 3-D logo on the central and peripheral route to persuasion. The Elaboration Likelihood Model is also important to synthesize during the creation of my experiment, as it is a reliable resource in the field of persuasion and describes the central and peripheral routes to attitude change (Petty and Cacioppo, 1981). These routes describe that a person can be categorized into high and low involvement groups, and that these groups may be able to predict a person's actions. Therefore, I will closely rely on the Elaboration Likelihood Model to create my experiment to test how groups of high and low involvement respondents vary in their opinions towards 3-D product visualization logos. According to Petty and Cacioppo (1981), the low involvement group will react more positively to advertisement because of its peripheral cues. The low involvement group should see the 3-D logo as a peripheral cue in itself, and therefore reply with more positive feedback than the high involvement group. The high involvement group will be primed with an advertisement that focuses on the argument quality and facts around the brand. The high involvement subjects will think more about the advertisement, and not focus so much on the 3-D logo as the low involvement group will.

I therefore suggest these four moderation hypotheses for the relationship between involvement, 3-D product visualization, and attitudes:

H3a – Involvement will positively moderate the relationship between 3-D Product Visualization and affective attitudes.

H3b - Low Involvement will more positively moderate the relationship between 3-D Product Visualization and affective attitudes than High Involvement.

H3c - Involvement will positively moderate the relationship between 3-D Product Visualization and behavioral attitudes.

H3d - Low Involvement will more positively moderate the relationship between 3-D Product Visualization and behavioral attitudes than High Involvement.

3.4 Research Model

I therefore suggest this model:

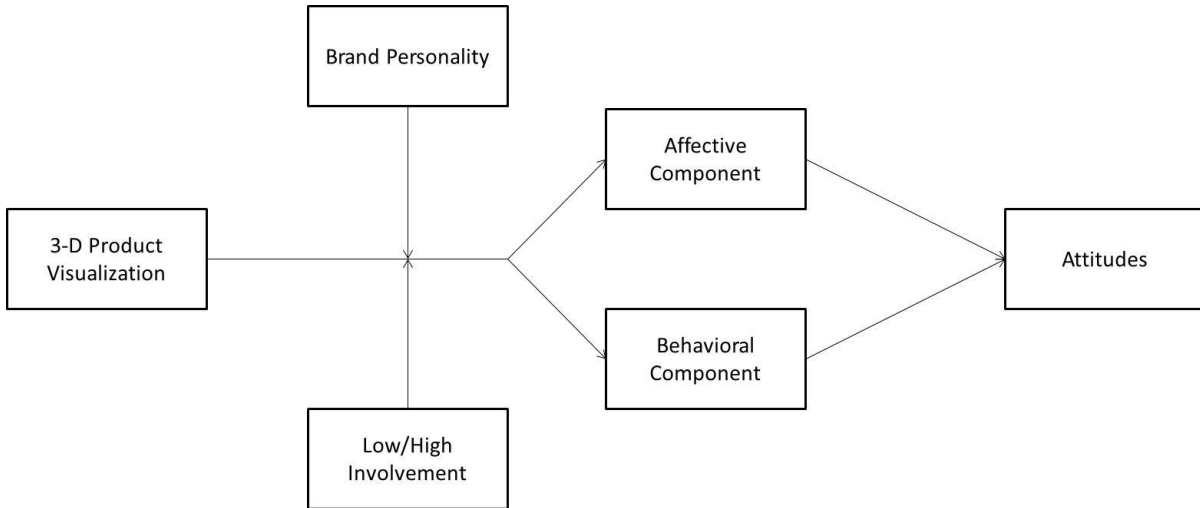


Figure 2 - Conceptual Framework

3.5 Summary of Hypotheses

Table 3 - Summary of Hypotheses

Hypothesis	Rationale	Direction
H1a	3-D Product Visualization logos will score higher than 2-D logos in affective attitudes.	+
H1b	3-D Product Visualization logos will score higher than 2-D logos in behavioral attitudes.	+
H2a	There will be a stronger Brand Personality 'Excitement' score for the 3-D Product Visualization logo than the 2-D logo.	+
H2b	The Brand Personality 'Excitement' will positively moderate the relationship between 3-D Product Visualization and affective attitudes.	+
H2c	The Brand Personality 'Excitement' will positively moderate the relationship between 3-D Product Visualization and behavioral attitudes.	+
H3a	Involvement will positively moderate the relationship between 3-D Product Visualization and affective attitudes.	+
H3b	Low Involvement will more positively moderate the relationship between 3-D Product Visualization and affective attitudes than High Involvement.	+
H3c	Involvement will positively moderate the relationship between 3-D Product Visualization and behavioral attitudes.	+
H3d	Low Involvement will more positively moderate the relationship between 3-D Product Visualization and behavioral attitudes than High Involvement.	+

4. Methodology

In this chapter I will clarify the choices I have made for the research design, research methods, setting, variables, control variables, and how I intend to collect data. The overall goals of the study, research question, hypotheses, and research model have guided my choices regarding the research design for this project. The sample size and setting will be discussed and the methods for data collection will be explained.

4.1 Research design

There are three different types of research designs commonly used today: Exploratory, descriptive, and casual research design. Exploratory design is used when the researcher does not know enough about the field of study, and has no clear hypotheses or model. The goal of an exploratory design method is to find or make the hypotheses. The descriptive research design is used when the researcher has knowledge or an understanding of the field of study, and the goal is to describe a relationship between one or several variables. This usually requires a clear hypothesis (Gripsrud et al., 2008). The last category of research design is a causal research design. The causal design is used when the research goal is to explore and investigate an effect of one or multiple independent variables on a dependent variable.

The research goal and questions guide the selection of a research design, and the goals and questions in this thesis lead to the selection of a causal research design to be implemented. In a casual research design the independent variable is a measured condition that exists independently, without influence from the study. The dependent variable is the condition that is manipulated so that the potential effect of the variable can be measured. A hypothesis must be testable and make a prediction about the relationship between the independent and dependent variable in an experiment (Mitchell and Jolley, 2010). In this thesis, the research goal is to see what the effect of dimensions (2D and 3D) has on attitudes that are measured in the affective and behavioral component. Additionally, the research goals will be to see what effect the moderation of involvement and brand personality has on the attitudes. Ultimately I am looking for a causal relationship between the models variables, and the hypothesis has been created to specifically test this relationship. If a causal relationship is found, it should show a change in attitude because of a change in dimensions, involvement, or brand personality. The potential change in advertising effects that I will be looking to measure in my experiment should allow me to presume that one of these three variables is responsible for the change in advertising effect (Bollen, 1989).

The causal design gives the researcher a choice between four major design types; experimental, quasi-experimental, cross-sectional, and pre-experimental (Frankfort-Nachmias and Nachmias, 1996). The experimental study requires two groups to be randomly assigned into an experimental group and a control group. The Experimental Group will receive the independent variable. The control group, on the other hand, will not receive the independent variable and the researcher can observe the cause-effect of the dependent variable (Frankfort-Nachmias and Nachmias, 1996). In quasi-experimental and cross-sectional studies the researcher cannot manipulate the independent variable, making its internal validity weaker than the experimental study. The cross-sectional study method is often used in the form of a survey, since this is an easy way to get a larger sample group without needing to spend excessive time and resources on the study (Frankfort-Nachmias and Nachmias, 1996). The last design type is the pre-experimental study, where respondents are not randomly assigned to groups and do not include a control group. Neither external nor internal validity can be controlled for in this type of study and it is more useful for pretesting research hypotheses and for explorative research designs (Frankfort-Nachmias and Nachmias, 1996).

For my research purpose I will need to use the design that can help me find a causal relationship between my chosen variables. An experimental design type, where I can control and manipulate the variables and thereafter observe the causal inferences between the variables, will be best suited for my study. The findings in an experimental study can often also be generalized to the tested population, which will make the finding applicable to certain markets. However this is dependent on the choice between a field experiment and a laboratory experiment, which I will revisit later.

4.2 Bollens Requirements of Causality

Before I can draw any conclusion about causality, I will need to fulfill Bollens (1989) three requirements. I will also go through internal validity, external validity, and statistical conclusion validity, since these three types of validity are closely linked to causality. Bollens (1989) three requirements are isolation, association, and direction of causation.

Isolation is when the independent variable X is the only variable influencing the dependent variable Y, and neither variable is influenced by any extraneous factors (Bollen, 1989; Mitchell and Jolley, 2010). This is one of the most critical factors to a study's internal validity. If the cause-effect between X and Y were to be explained by a third variable that is omitted from the model, we would have a spurious effect. The other problem would be a

suppressor relation. This relation happens if there is a third variable omitted from the model which hides the effect X has on Y (Bollen, 1989). A research study cannot obtain full isolation, as this is impossible according to Bollen (1989), since one would have to create a “vacuum” where all external influences were kept out. Yet a research study needs to obtain as much isolation as possible to exclude many of the spurious and suppressed relations, which leads to a higher internal validity. Actions that can be taken towards better isolation are to create control variables and do the experiment in a homogeneous setting. I will write about the control variables in this study later in this chapter. A homogeneous setting implies that the experiment is conducted on a population with subjects who are similar to each other (Mitchell and Jolley, 2010). Another way to increase the internal validity will be to use a laboratory experiment contra a field experiment. The laboratory experiment gives the researcher control over the variables, and gives the opportunity to manipulate one variable while keeping the other variables the same (Mitchell and Jolley, 2010). When deciding to do a laboratory experiment the researcher prioritizes the internal validity instead of the external validity, which is the generalizability to other settings. This is due to the fact that a laboratory experiment will be executed in an artificial setting for the population, which makes it harder to generalize the findings to real life situations. Mitchell and Jolley (2010) conclude that a laboratory experiment is very real to participants, and therefore should not hurt the external validity too much. I will use a laboratory experiment in my study, this way I will be able to isolate the variables and eliminate effects of variables that I am not testing. This will in the end strengthen the internal validity of my study.

Bollens (1989) next requirement is association, which means that a change in variable X will cause a change in dependent variable Y. If variable X changes and is accompanied by a change in variable Y, the two variables covaries with each other (Frankfort-Nachmias and Nachmias, 1996). However, before one can draw any conclusion about association, the first requirement of isolation needs to be fulfilled (Bollen, 1989).

The last requirement Bollen (1989) lists, is the direction of causation. For one to be able to prove that X causes Y, one need to prove that X comes before Y in time. If it does not, one cannot prove that X is the cause of the change in Y. In an experiment setting this is usually easy to fulfill, since the creators of the experiment have full control over when the treatment is given. Bollen (1989) states that isolation needs to be fulfilled first, then association. Without direction of cause, causation cannot be proven. The author also talks

about isolation being the most important requirement, whereas direction of cause is the least important (Bollen, 1989).

Statistical conclusion validity is closely linked to the requirement of causality according to Cook and Campbell (1979). This type of validity measures to what degree one can make the right assumptions about causality in the study, with regards to the statistical data. There are several threats to statistical conclusion validity, and type I and type II errors are the most substantial. A type I error is when an insignificant relation is called significant, and type II error is when one fails to find the relation to be significant when it really is (Cook and Campbell, 1979; Mitchell and Jolley, 2010). The other threats include low statistical power, reliability of measurements and treatment, and error to the setting and population (Cook and Campbell, 1979). In my study I have taken these threats into consideration, and will therefore increase my sample size, test my alpha level on higher levels, keep the treatment the same to all respondents, and have a homogeneous setting to increase my statistical conclusion validity.

4.3 Empirical Setting

The empirical setting implies the surroundings of the study, and this is where I decide on what kind of sample group I am going to use for my study. As mentioned before, I need to create a homogeneous setting to increase the isolation of the study (Bollen, 1989), and also to increase the statistical conclusion validity (Cook and Campbell, 1970). The creation of a homogenous setting and statistical conclusion validity is also recommended by Mitchell and Jolley (2010) to increase the internal validity and reliability. To create a homogeneous setting I need to find subjects who are similar to each other, without using subjects that are too similar. By using subjects that are too much alike I will weaken the external validity, and in other words, weaken the generalizability of the study (Mitchell and Jolley, 2010).

In my study I will use young American adults from the state of Texas as my setting. To classify young adults I have set the limits between the age of 21 and 29 years old. This age group should be more receptive to new types of advertisement, as they have grown up in an age of technology. The choice to only use young adults from the state of Texas is to avoid using too broad a population, and therefore be unable to get a sufficient enough sample for it to be generalizable.

4.4 Demographic Variables and Control Variables

As Bollen (1989) suggested it is important to use control variables to create a better isolation in the study. Control variables are independent variables that cannot be manipulated by the researcher. By using good control variables I can also check for spurious relations between the variables, and in that way rule out that the control variables actually influence the study. The results of this are a higher internal validity in the research, and help me exclude all the errors and make the right conclusion based on the research (Bollen, 1989). In my study I will use the demographic variables of age, gender, level of education, employment status, and residency in the state of Texas.

Age and gender have been commonly used control variables for a long time, and these will give me the ability to throw out the age groups that I do not want to include in my studies. Level of education can explain the socioeconomic class of the respondents. The employment status was included because young adults are in different life stages, and I wanted to control that the responses would not be different based on this. The last control variable was to control that all subjects shared the same geographical location as I have stated in my research, and therefore state of residency added.

4.5 Measure Development and Measure Instrument

Before I can measure my variables, I need to define them. I will use the guidelines proposed by Bollen (1989) to do so. According to him, the measurement process starts with a concept and this concept is defined as an idea that unites phenomena under a single term (Bollen, 1989). He further explains a four step process to take a concept and develop it into a measure, and the goal of this is to ensure a higher validity in the study. The steps are:

- (1) Give the meaning of the concept
- (2) Identify the dimensions and latent variables to represent it
- (3) Form measures
- (4) Specify the relation between the measures and the latent variables

The first two steps are already done in the theory chapter of this thesis. In this section I have reviewed other theory related to my study and used this to define the theoretical constructs, and thereafter I created a research model with hypotheses to fulfill these first two steps. The third step is to form measures of the latent variables so that these can represent the construct (Bollen, 1989). This process will be done in the following sub-chapters where I will

form measures for my latent variables. The last of Bollen's (1989) four steps is to specify the relation between these measures and the latent variables. This process will happen after the data is collected and these have been analyzed. The relation between the measures and latent variables can be presented and defined as either reflective or formative measures (Bollen and Lennox, 1991). In a reflective model the measures reflect the latent variable, whereas in the formative model the measures form the latent variable.

In the study I have used a 7-point Likert-scale for my *Affective Component* and *Behavioral Component*, ranging the answer from the value of 1 to 7 where 1 is “*Strongly disagree*” and 7 is “*Strongly agree*”. The *Brand Personality* will also be measured on a 7-point Likert-Scale, but will use 1 for “*Not-at-all descriptive*” and 7 is “*Extremely descriptive*”. The *age* variable was split into age groups of: ≤ 20 , 21-23, 24-26, 27-29, and ≥ 30 . This way I could easily throw out the age groups that were not supposed to be measured, and at the same time control for age clusters inside of this already narrowed down population. Participants were asked questions about their *highest completed education* and *employment status*, so that every respondent could be classified into one of the options listed.

4.5.1 Attitudes

In my research the goal is to study the changes in attitudes towards a 2-D logo and a 3-D Product Visualization logo, and thereafter see if involvement or brand personality has a moderator effect on this relationship. Attitudes have three components, the cognitive, the affective, and the behavioral component (Breckler, 1984). I will test my differing logos on two out of these three components, so that I can study the effects the changes have on two of the very important parts of attitudes. As I described earlier, I have decided to not include the cognitive component. I will now form measures for the two components of attitude that will be measured in my study, which are the affective and the behavioral components.

4.5.1.1 Affective

The affective component of attitudes is our feelings or emotions towards a specific entity (Breckler, 1984). This can be measured by gauging to what degree the subjects find a logo enjoyable and how much they like it. To create these questions I was inspired by Yim, Cicchirillo, and Drumwright (2012) and set up questions similar to the enjoyment questions they used in their study. In addition, I implemented more questions to be able to identify and remove any subjects who may be answering randomly. This was also insured by adding two negative questions, which were later reverse scored before the data analysis.

The questions for the affective component of attitudes are found below in table 4. The subjects responded based on their opinions which were measured with values from 1 to 7, where 1 is “*Strongly disagree*” and 7 is “*Strongly agree*”.

Table 4 - Questions for Affective Component of Attitude

	Question
1	<i>This logo is visually appealing.</i>
2	<i>I find this logo enjoyable.</i>
3	<i>I find this logo to be fun.</i>
4	<i>I find this logo to be interesting.</i>
5	<i>I find this logo to be boring.</i>
6	<i>This logo has an incredible display.</i>
7	<i>I find this logo to be irritating.</i>
8	<i>My visual sense is stimulated by the appearance of the logo.</i>
9	<i>The logo captures my attention.</i>
10	<i>I would enjoy seeing this logo again.</i>

4.5.1.2 Behavioral

The behavioral component describes how one’s attitude makes one act in specific situations (Breckler, 1984). This can be measured by observing purchase intention or intention to find out more about a specific logo. Since I am studying logos instead of products, purchase intention would be difficult to measure. If respondents were to be measured on their intention to buy a realistic or fictional product that had been described, they could most likely formulate a prediction about how they would act based on their knowledge of the product. However, it would be unrealistic to measure a respondent about their buying intention for a non-stated product when the only available knowledge for the respondents to base this decision off of is about the brand. This type of question would not be reliable because the subjects would most likely select a random answer from the lack of information provided. Therefore, this section of the experiment contains questions about the respondent’s intention to find out more information about the logo and their recognition of the logo.

The questions by which to measure the behavioral component of attitudes are found below in table 5. The respondents could respond with answers ranging from the values 1 to 7, where 1 is “*Strongly disagree*” and 7 is “*Strongly agree*”.

Table 5 - Questions for Behavioral Component of Attitude

	Question
1	<i>I am likely to recognize this logo if I saw it again.</i>
2	<i>The appearance of the logo makes me want to know more about the brand.</i>
3	<i>I am interested to find out more about this brand because the logo stands out to me.</i>
4	<i>I am likely to remember this logo because of its interaction with the space around it.</i>
5	<i>If I were going to buy a pair of shoes, I would consider this brand when making my selection because of the impact the logo has made on me.</i>

4.5.2 Brand Personality

In the experiment I have used Aaker’s (1997) Brand Personality model, and have had to re-create her work by defining the brand I am testing into separate personalities. Therefore this section contains all of the facet names of Aakers (1997) study. I decided to only use the Facet Names as the description of the brand personalities, instead of all of the traits. My reasoning for choosing to not include all of the traits is that the list would have been too extensive, and I was afraid that most subjects would fall off due to the long list of traits that they would have needed to read in order to describe and rate the brand. The Facet Names also represents the five different personalities in a concise way, and if the results from my experiment show a positive correlation between the four facets that describe the “Excitement” brand personality, I feel that these results would reinforce that the Facet Names represents the personality adequately.

The questions for the brand personality are found below in table 6. And as mentioned earlier, they were measured on a scale ranging from 1 to 7, where 1 is “*Not-at-all descriptive*” and 7 is “*Extremely descriptive*”.

Table 6 - Facets for Brand Personality

1	Down-to-earth	2	Honest	3	Wholesome
4	Cheerful	5	Daring	6	Spirited
7	Imaginative	8	Up-to-date	9	Reliable

10	Intelligent	11	Successful	12	Upper-class
13	Charming	14	Outdoorsy	15	Tough

4.5.3 Involvement

The measures of involvement were not measured, since this can be a challenge to control for (Petty and Cacioppo, 1981). Instead I primed one group of respondents into a high involvement group, and the other to a low involvement group. By using the extreme positions of the continuum I should be able to measure and analyze the differences between the two groups (Petty and Cacioppo, 1981). The procedure to influence subjects into these extreme positions of the Elaboration Likelihood Model was to give the two groups different advertisements. The low involvement group received an advertisement with less text, a bigger picture which should get their attention, and also expert/celebrity endorsement. The high involvement group received an advertisement with a smaller picture, higher quality arguments, and use of rhetorical questions which should influence the subjects to implement critical thinking.

4.5.4 Control Variables

Control variables are included in a research study to make sure that the relationships I find between the variables in my model are not due to other factors. In other words, I need to make sure that age and gender are not the deciding factor of the relationship. In my study I will use *age*, *gender*, *employment status*, *last completed education*, and *state residency* as control variables. *Age* was measured in intervals of three years. The first option was for subjects who were less than 20 years old, and the last option was for subjects who were 30 years or older. These two options would automatically exit the experiment since they were not in the sample group. The other age groups were: “21-23”, “24-26”, and “27-29”. *Gender* was measured on a dichotomous variable, with the response options of male and female.

Employment status would examine the differences in the subjects’ current work or study situation. If there was a significant difference between subjects working and those who were studying, the results of the study would not be correct since it would also depend on current status. This scale contained five options: “*Full-time student*”, “*Part-time student*”, “*Full-time work*”, “*Unemployed*”, and “*Other*”. The “*other*” option was created as an alternative for subjects who did not identify themselves into one of the other options. *Last completed education* is there to measure the difference in educational level, and to understand

the differences of respondent's answers based on these. The respondents were presented a list of four options ranging from "*High School/GED*" to "*Doctorate Degree*".

The last control variable was *state residency* and was an open question the respondents had to answer. It was used to control that no samples from other states than Texas in the United States of America would be included. This had to be included since I was using online resources to distribute my experiment.

4.6 Data Collection

In this section I will discuss the data collection component of my thesis. This includes how the experiment was created, who was included in the sample group, and how I recruited these subjects. As mentioned before, my population for this study is young adults from Texas, between the ages of 21 and 29 years.

4.6.1 Crafting the Experiment

Now that I have created variables, and formed the measurements of these, it is time to gather the data for my experiments. I needed to create three different experiments to be able to examine and test the hypotheses for this study. In the first experiment I needed one group that received a 2-D logo paired with minimum information, which would make up my control group. The treatment group will receive the same text, but with a 3-D product visualization logo. This experiment will help me test the differences between 2-D and 3-D product visualization, and confirm that 3-D product visualization is significantly higher than 2-D on both the affective and the behavioral component of attitudes. These represent hypothesis H1a and H1b.

My second experiment will test if the addition of brand personality would moderate the relationship between 2-D/3-D product visualization and affective and behavioral component of attitudes. These two groups will help me test hypothesis H2a, H2b, and H2c. To test this I will add two experiment groups which will receive different treatments to test for these effects. The first group will receive the 2-D logo and the second group will receive the 3-D product visualization logo. Information about the brand will be given to both of the experiment groups, and this will hopefully prime the subjects to think about the brand as exciting. The goal of the information they will receive will be to influence the subject's opinion about the brand, and to persuade them to think about it as innovative, having a bold identity, and being a front runner when it comes to new ways to create a logo. If the

information effectively primes the respondents, they should positively score the brand in the areas that classify it as up-to-date, imaginative, spirited, and daring.

The third experiment test will see the effects of adding high and low involvement to the logo. This experiment represents hypotheses H3a, H3b, H3c, and H3d. These two experiment groups will both be tested by presenting a 3-D product visualization logo, and each group will receive an advertisement specifically made for their involvement group. The regular 3-D product visualization group will represent the control group in this setting, since they were not given any involvement information before answering the questions. This third experiment will help me test for moderation effects on the relationship between 3-D product visualization and my two variables of attitude, affective and behavioral.

To create these three different experiments I decided to use a program called MI Pro Research, and used this software to build experiments that could be sent to potential respondents via online links. I started off with questions about demographics, to be able to easily throw out respondents that were not in my population. Those who did not represent the population received an automatic message that stated “You do not meet the requirements to qualify for the sample group I am researching. Thank you for participating.” All of the questions included randomized row rotation to ensure there would be no bias caused from everyone answering the questions in the same specific order. Questions formed to measure a specific variable were placed on the same page, making the experiment structural and easy for the participants to understand. To control for participants answering randomly, two of the question were negatively loaded. These utilized the words “boring” and “irritating”. The six different sets of questions for the experiment groups can be found in Appendix A.

4.6.2 Recruiting Respondents

Before recruiting respondents there should be a clear tactic in regards to how to assign subjects to a group. There are four different types of sampling methods for this type of study, ranging from the best to least favorable option: Proportionate stratified random sampling, random sampling, quota sampling, and convenience sampling (Mitchell and Jolley, 2010). In short, the differences are that random sampling gives everyone in the population a chance of being selected. To be able to fulfill this, the researcher needs to know everyone that is in the population and randomly select subjects (Mitchell and Jolley, 2010). This is time consuming and hard to do since the researcher needs to get in contact with the ones selected. A proportionate stratified random sampling is a step down from this; instead the researcher

focuses on making the sample similar to the population group on certain criteria. E.g. pick the right percentage for the genders, or age groups (Mitchell and Jolley, 2010). A convenience sample is the least favorable and most common method of sampling, since the researcher picks the ones that are the easiest to reach, hence the name (Mitchell and Jolley, 2010). The last sampling method is a quota sample, using a convenience sample but trying to re-create the population with similar characteristics (Mitchell and Jolley, 2010).

For my research I decided on a convenience sample. The reasoning behind this is that this is a common way of sampling, and it is easy and economical way of collecting data. To be able to identify every young adult in Texas, and thereafter reach out to them for an experiment, would take too much time and be very inconvenient. The consequence of this choice is that the subjects might over-represent one part of the population, and therefore result in biased answers (Mitchell and Jolley, 2010). To be able to randomly assign each respondent into a group, I created a hyperlink that automatically and randomly would bring the respondent to one of the six different experiments. This way I could make sure that every experiment was evenly distributed; and at the same time could ensure that no social group would all end up in the same experiment.

For the sample size Mitchell and Jolley (2010) recommends more than 30 participants from each condition in an experiment. For my study this would require $6 \times 30 = 180$ participants. This criterion was met, since I had more than 30 subjects in each of the six experiments ($N = 190$). The participants were recruited via social media, such as Facebook and LinkedIn, and distributed via friends so the sample would be more evenly distributed between different types of people.

4.7 Summary

In this chapter I have argued for my choice of research design, where causal design was chosen. Due to the choice of a causal design, I have explored Bollen's requirement for causality and how to handle them. Further, with the chosen research design and research questions stated, I reasoned that an experimental design type was the best choice. I argued why a laboratory experiment would be better than a field experiment. Validity and other terms that will ensure the results have been discussed. Measure development for all of the variables in the research model was done. Further, data collection was discussed. A convenience sampling method was chosen, as well as an outline for the different experiments.

5. Analysis and Results

In this section of my research I will present the analysis of the data. This analysis has been done in IBM SPSS version 22. I will first examine the descriptive statistics of the study, and thereafter discuss the validity and reliability. At the end I will test the models hypotheses using ANOVA. Before analyzing the results responses from both Affective5 and Affective7 have been reversed scored, as a result of these scales measuring negative items.

5.1 Descriptive Statistics

The descriptive statistics provide an opportunity for the researcher to organize and control the data before analyzing it (Frankfort-Nachmias and Nachmias, 1997). The important factors to check for are the means, minimum and maximum values, standard deviation, skewness, and kurtosis. Standard deviation is the term which explains how much the scores differ from or deviate from the mean of variable (Mitchell and Jolley, 2010). Skewness explains to what amount the graph is skewed from a normal distribution, and also specifies if the graph is skewed to the left (indicated by a negative number) or to the right (indicated by a positive number) (Pallant, 2011). A perfectly normal distribution will achieve the score of 0, and scores over 1 should be examined (Kaplan, 1990). Kurtosis tells if the graph has a normal, or thinner/flatter peak, and the scores should range between -3 and 3 to be normally distributed (Kline, 2011). When scores are positive they indicate a thinner peak, or a leptokurtic curve. On the other hand, a negative score indicates a flatter peak also called a platykurtic curve. A leptokurtic curve indicates that the respondents have answered the question very similar, whereas a platykurtic curve indicates that the respondents have answered the question differently (Pallant, 2011). Later in this chapter I will thoroughly examine these results for each of the variables.

In my dataset I had two control variables that would tell me if a respondent qualified for my population or not, and those were age and state residency. All age groups not in my population were deleted before analysis, and the answers from state residency were examined as well. Accepted responses in the question that checked for state residency were: “Texas”, “TX”, and “Tex”. After checking for and deleting respondents not in my population, I had a sample size of 190 cases. These cases were adequately spread across the six experiment groups, as shown in table 7.

Table 7 - Spread across the different experiment groups

Experiment Group		Frequency	Percent
Valid	1.00	31	16.3
	2.00	33	17.4
	3.00	32	16.8
	4.00	30	15.8
	5.00	31	16.3
	6.00	33	17.4
	Total	190	100.0

5.1.1 Control Variables

My dataset contains of 190 cases, with 118 females and 72 men. Even with an overweight of women respondents, this should not be considered a threat to the study since I have not hypothesized any differences in gender for this study. The mean age group is 2.98 (SD=.712), which indicates the ages between 24-26 years old. This age group was dominant in the studies, with 49.5% of the respondents in this group. Further, 52.6% of the respondents held full-time work position compared to 18.9% for full-time students. The differences in higher education were that 73.3% of the respondents had completed a degree, compared to 26.3% whose highest level of education was high school. The responses to the education question reflected a majority of bachelor's degrees, measuring with a percentage of 52.1. All descriptive statistics for the control variables can be found in attachment B.

5.1.2 Affective Component of Attitudes

I had 10 different questions representing the affective component of attitudes, and the minimum and maximum values indicate that the full scale was used for all of the items. The means ranged from 3.17 to 4.46; with Affective6 receiving the lowest score and Affective5 is drawing the highest score. All of the items have a very similar standard deviation that ranges from 1.42 to 1.55, with Affective5 as the lowest value and Affective9 with the highest value. The scores on skewness were all under the value of 1, and no item was higher than -0.368. Six of the items had a positive score, indicating a distribution to the right with more responses on the positive side of the Likert-scale. The kurtosis scores were all below 3, with the highest one at -1.067. All of the kurtosis scores were negative, indicating a platykurtic curve.

5.1.3 Behavioral component of Attitudes

The behavioral component of attitudes was measured using 5 different questions, and the minimum and maximum values show that the full scale from 1 to 7 was used on all items. The means ranged from 2.96 to 4.78, with Behavioral5 as the lowest and Behavioral1 scoring the highest. The standard deviation had similar scores on all items, ranging from 1.32 to 1.53. The item Behavioral1 scored highest on the mean, but lowest on the standard deviation, indicating that this item was scored very similar by all of the respondents. All skewness values were below 1 and 4 out of the 5 items had positive values. The items also scored below the indicated value of 3 on kurtosis, with 4 out of 5 items having a platykurtic curve. Behavioral1 was the factor that had the negative skewness score, and positive kurtosis score.

5.1.4 Brand Personality

The brand personality was measured using 15 different items, but in this section I do not expect the skewness and kurtosis values to be low. The reason for this is that I expect some scores to generally be scored very low or very high on the scale since the brand does not fit some of the personalities. The means range from 2.29 to 5.18, which reflect a more spread set of means, as expected. The standard deviation ranges from 1.13 to 1.41, which is again more spread out than the two other variables. When it comes to skewness and kurtosis there are multiple items that have a non-normal distribution. What is important to extract from the results is that the excitement personality facet names do have a normal distribution. The four items (daring, spirited, imaginative, up-to-date) are all in the normal range of skewness and kurtosis. The means of these items range from 4.74 to 5.18, with standard deviation ranging from 1.15 to 1.35.

5.2 Measure validation

Before testing my hypotheses I want to make sure that I am measuring what I have intended to measure (Ringdal, 2007). Bollen (1989) claims that we can find support for validity, but that it cannot be proven. In this part of my research I will discuss and test content validity, statistical conclusion validity, and construct validity.

5.2.1 Content Validity

Content validity is split into two different types of validity, face validity and sampling validity (Frankfort-Nachmias and Nachmias, 1997). Face validity cannot be tested for, but is a subjective judgement of the measuring instrument. The researcher has to create questions that should represent a certain construct, and thereafter try to get approval for these questions

from other researchers. If this is found, one can claim that the researcher has found face validity (Frankfort-Nachmias and Nachmias, 1997). Sampling validity is also a theoretical validation form, very similar to face validity. If the question that represents a construct does not cover all of the dimensions of it, it does not have a good sampling validity (Frankfort-Nachmias and Nachmias, 1997). Sampling validity is also tested by using good judgement, and again it is proposed to get approval for this via other researchers.

In my study I have created my scales for affective and behavioral component of attitudes mostly based off of other accepted studies. Other questions were added, as it seemed to better fit the concept. Asking for advice and discussing the question was also done to confirm both face and sampling validity. Brand personality is fully based off of Aaker's (1997) accepted study about brand personality. By using other researchers' material I should get adequately better validity, as these questions have already passed face and sampling validity for the construct before.

5.2.2 Statistical Conclusion Validity

As mentioned in the methodology of this research, I need to take threats to my statistical conclusion validity into consideration, and therefore have chosen to increase my sample size as much as was in my control. I have also tested a homogenous population, and kept the treatment exactly the same to all of the respondents in the same experiment group. This was an easy task since my testing was through six standardized experiments. Lastly, I have tested the alpha levels at a 95% confidence level, implying that I have a 5% chance of making a type II error (Cook and Campbell, 1979).

5.2.3 Construct Validity

Construct validity is "*the degree of which it is studying the variables it claims to be studying*" (Mitchell and Jolley, 2010, p. 100). It is split into two different types of validity, which are convergent validity and discriminant validity.

Convergent validity is to what degree the items or questions correlate with the other items or questions that are supposed to measure the same construct (Mitchell and Jolley, 2010). The higher the items correlate with each other, the higher score of F they will have. F is the amount of factor loading on the construct (Ringdal, 2007). To be able to determine if the items are correlating enough, I need to set a lower limit of F to accept. There are many different opinions on how low to set the limit. The lower the limit is set, the higher the risk is of accepting an item that does not correlate enough with construct, and therefore reduces the

convergent validity. Ringdal (2007) suggests setting the lower limit at 0.4, whereas Hair, Black, and Babin (2010) suggest setting the limit at 0.3. A high limit would be at 0.8 (Velicer and Fava, 1998), but this is too high of a limit for most studies and the chances of denying an item is great. Costello and Osborne (2005) propose a limit between 0.4 and 0.7, as this is what is most common in social science. For my study I will set my lower limit at 0.4. Before doing a factor analysis I need to check that I have sufficient items to perform the test. Velicer and Fava (1998) suggest a critical value of 3 as the minimum items for a construct, but that the use of 4-5 is a better choice. This is adequately met for affective components of attitudes (10 items), behavioral components of attitudes (5 items), and brand personality (15 items).

The discriminant validity is to what degree the items or questions correlate with other items or questions that are supposed to measure another construct (Mitchell and Jolley, 2010). When testing for discriminant validity I need to see if any item loads highly on another factor than where they are supposed to. Costello and Osborne (2005) suggest that if an item has a loading of more than 0.32 on another factor, it should be excluded since it is loading high on two factors. The order in which the validity tests are done is important. First I need to establish convergent validity in each of my two dependent variables or constructs, and the affective and behavioral component of attitudes. Thereafter I need to establish divergent validity across these two constructs.

To do these factor analyses I will use the extraction method of Maximum Likelihood with Direct Oblimin as the rotation option. The reasoning behind using Maximum Likelihood is that my dataset is relatively normally distributed, a requirement from Costello and Osborne (2005). For the rotation method, an oblique rotation is the preferred choice when one expects the factors to correlate since they are similar (Ringdal, 2007). Direct Oblimin is the oblique rotation method I have chosen for this study, as there are fairly few differences between Direct Oblimin and Promax (Robins, Fraley, and Krueger, 2009). I highly expect affective and behavioral components of attitudes to correlate since they both are defined from the higher construct of attitudes.

5.2.3.1 Convergent Validity – Affective component of Attitudes

The affective component of attitudes had 10 items going in to the factor analysis. After running the analysis the first time, I had loadings on two factors. Affective5 did not meet the required loading of 0.4 with its score of 0.37, and therefore I needed to consider excluding it from the factor. This question was: “*I find this logo to be boring*”, indicating that the neither

logo in the study was boring because of the lack of correlation. This is also supported by the mean of 4.46, which has been reverse coded from 3.54. This falls between “*Somewhat disagree*” and “*Neutral*”. Another problem was that Affective8 and Affective9 scored high on two factors. I decided to remove Affective5 first and then run another factor analysis. Even though it was close to 0.4, I decided that this factor could be a problem during discriminant validity since the two variables are already close in theory. The results after removing Affective5 are presented in table 8 below:

Table 8 - Factor Analysis of affective component of attitudes

	Factor
	1
Affective1	.910
Affective2	.901
Affective3	.858
Affective4	.834
Affective6	.793
Affective7	.489
Affective8	.631
Affective9	.656
Affective10	.877

The affective component of attitudes has very high correlation for most of the items, except for Affective7 with the factor loading of 0.489 which is: “*I find this logo to be irritating*”. It could be due to similar effects such as those that item Affective5 experienced. Since it is still meeting the required factor loading of 0.4, I will choose to keep it for now, and be observant of the effects this will have on the discriminant validity and reliability.

5.2.3.2 Convergent Validity – Behavioral component of Attitudes

The behavioral component of attitudes had 5 items contributing to the factor analysis. After the first test, the items had loadings on two factors. Behavioral1 did not correlate together with the four other items on factor 2 at all with a factor loading of -0.005, but it did correlate slightly with Behavioral4 on factor 1 (0.999 versus 0.540). Given this result, I decided to exclude Behavioral1 from the factor. The question was “*I am likely to recognize this logo if I saw again*”. I also decided to keep Behavioral4 since it still correlated at 0.484 with the other items on factor 2. The results after removing Behavioral1 are presented in table 9 below:

Table 9 - Factor Analysis of behavioral component of attitudes

	Factor
	1
Behavioral2	.947
Behavioral3	.917
Behavioral4	.620
Behavioral5	.748

After running a second factor analysis I had no problems fitting all of the items into one factor with high correlations. Since I now only have four items presenting behavioral component of attitudes, I need to be careful about removing any more items as an effect of the discriminant validity and reliability tests.

5.2.3.3 Discriminant Validity – Attitudes

After finding one factor for each of my dependent variables, I need to find out if they correlate with each other. I will be using the same techniques as with the convergent validity, and now I expect the oblique rotation choice to be able to assist with the correlating factors I have in my dataset. The results of the divergent validity test can be found below in table 10:

Table 10 - Divergent validity between affective and behavioral components of attitudes

	Factor	
	1	2
Affective1	1.003	
Affective2	1.020	
Affective3	.762	
Affective4	.886	
Affective6	.694	
Affective7	.405	
Affective8	.526	
Affective9	.556	
Affective10	.662	
Behavioral2		-.866
Behavioral3		-.833
Behavioral4		-.664
Behavioral5		-.686

As seen in the results of the divergent validity the Pattern Matrix reports the two factors separately, just as intended. Brown (2015) recommends the use of the pattern matrix over structure matrix when doing an oblique rotation, as these two report different types of values. The pattern matrix reports the unique relationship between the factor and the item, while at the same time controlling for other factors (Brown, 2015). The structure matrix multiplies the values in the pattern matrix with the values of the factor correlation matrix. This makes a combination of a pattern matrix included the relationship between the item and the shared variance of the factors (Brown, 2015). Since both variables had loadings on each factor, I can go through to the reliability analysis. After reading the results I have decided not to do anything about the item Affective7, since it has a satisfying factor loading on the correct variable and does not correlate with the other factor. Therefore, it will be kept and investigated in the reliability section with the other items.

5.3 Reliability

Reliability is the degree of error in a measurement instrument (Frankfort-Nachmias and Nachmias, 1997). Put in another way, reliability is to what extent one will get the same results if one did the exact same experiment again. Random error is what causes there to be different result when re-testing a study. Reliability actually decides on how high the validity of the study can be, since reliability is a prerequisite for validity (Mitchell and Jolley, 2010). There are three ways of checking for reliability in a study according to Ringdal (2007); general source criticism, test-retest technique, and internal consistency. The first option is not applicable to my study. A test-retest technique would require all participants to partake in the experiment one more time, and the researcher could check for differences (Mitchell and Jolley, 2010). The problem with doing this is that I have created six different experiment groups which have been randomly distributed, making it hard or impossible to find all of the respondents and have them re-take the experiments. This would also be very time consuming, and since this research has a limited time this is not an option.

As a result of this, I will check for internal consistency and use this as my reliability measure. When using this option, the researcher will calculate the Cronbach's alpha on each of the suggested variables. Cronbach's alpha measurement ranges from 0 to 1. A score of 0 would imply that there is nothing else than error and 1 would imply no errors (Frankfort-Nachmias and Nachmias, 1997). A required alpha of at least 0.7 has been set by multiple researchers (Frankfort-Nachmias and Nachmias, 1997; Mitchell and Jolley, 2010; Ringdal, 2007), and it should preferably be over 0.8. The results can be found in table 11 below:

Table 11 - Reliability analysis of the two dependent variables

Construct	Cronbach's Alpha	Number of items
Affective component of attitudes	0.930	9
Behavioral component of attitudes	0.883	4

Before analyzing the results of the reliability test, I need to check what the alpha levels would be if some items were removed. As mentioned before, Affective5 has been scoring low in both convergent and discriminant validity. When checking for which one to remove to increase the alpha level, Affective5 is once again the item that will increase the score. The new alpha level without Affective5 would be at 0.939, which is a small increase from the current alpha level. With this in mind I will keep Affective5 when indexing the variables. On the behavioral construct Behavioral4 was the item that could be removed, as a result of creating a higher alpha level. The new value would be 0.901. While this new alpha level is a more sufficient increase, I do not see it as necessary when my alpha level is already over the required and satisfactory level. Concurrently this would also reduce the behavioral construct to only 3 items, which are the absolute minimum required items (Velicer and Fava, 1998). Therefore I will keep Behavioral4 when indexing the variables. From the result both variables have a satisfactory alpha level, and the affective component is almost at 1. This indicates that there is a very small chance of random error in the dataset.

5.4 Indexing constructs

Before testing my hypotheses I need to index variables based on my results from the validity and reliability tests. All of the items that have passed all of these tests will now be included to create the two dependent variables. The procedure for doing this is to compute the mean of the items for each of the variables, and this was done using SPSS compute function. In table 12 there will be a review of which items were included to index each of the constructs.

Table 12 - Indexing constructs for dependent variables

Construct Name	Items and Procedure	No. of items
AFFECTIVE	Mean(Affective1, Affective2, Affective3, Affective4, Affective6, Affective7, Affective8, Affective9, Affective10)	9
BEHAVIORAL	Mean(Behavioral2, Behavioral3, Behavioral4, Behavioral5)	4

5.5 Manipulation Check

The next step before testing the hypotheses is to check if the subjects perceived the logo with scores that are consistent with an exciting brand personality. To do this I will use a simple method of checking this by indexing each of Aaker's (1997) brand personality scales together, and thereafter comparing the means to each other. The reasoning behind using a simple method like this is that a deeper analysis of this would be time consuming. I have indexed the facet names into constructs, as shown in table 13 below:

Table 13 - Indexing Constructs for Brand Personalities

Construct Name	Items and Procedure	No. of items
SINCERITY	Mean(down-to-earth, honest, wholesome, cheerful)	5
EXCITEMENT	Mean(daring, spirited, imaginative, up-to-date)	4
COMPETENCE	Mean(reliable, intelligent, successful)	3
SOPHISTICATION	Mean(upper class, charming)	2
RUGGEDNESS	Mean(outdoorsy, tough)	2

After indexing the result I ran a frequencies test with the means of each construct. This is to show which of the brand personality's dimensions were strongly associated with the logo. And as seen in table 14 below, the means for excitement ($M=4.93$, $SD=1.01$) are higher than for each of the other constructs, implying that the brand is seen as having the brand personality of excitement. The second highest scoring personality ruggedness ($M=3.88$, $SD=1.23$) is more than one point below excitement on the 7-point Likert scale. With the time frame of this study I see this as a good enough indication that my manipulation on brand personality did in fact work.

Table 14 - Means for Brand Personality

	EXCITEMENT	SINCERITY	COMPETENCE	SOPHISTICATION	RUGGEDNESS
N	62	62	62	62	62
Mean	4.9274	3.0645	3.8387	2.9032	3.8790
Std. Deviation	1.01463	1.00504	.95955	.90915	1.23370

5.6 Assumption for ANOVA

ANOVA stands for analysis of variance, and is used in experiments when testing for differences between two or more groups (Ringdal, 2007). In this thesis I will use ANOVA and independent sample t-test to tests for my hypotheses, and since both of these are parametric tests I need to meet a series of assumptions before being able to interpret the results. If the assumptions are not met and the data is assumed to be non-parametric, the results may be inaccurate. There are four assumptions of ANOVA; Independent observations, data on an interval or ratio scale, normally distributed sample, and homogeneity in variances (Mitchell and Jolley, 2010).

5.6.1 Assumption 1 – Independent observations

The first assumption, also said to be one of the most critical ones (Mitchell and Jolley, 2010), is that the observations needs to be independent from each other. This implies that none of the participants should, under any circumstance, be influenced by other participants' answers. There are a couple of factors that implies that this assumption has been met. The first factor is that all of the participants recruited to this study took the experiment online. Therefore they had no knowledge of who else took the study and could therefore not communicate with others. They also had no control that they would be in the same experiment group as any other respondent, as this was randomized. I also added randomizing the order of questions; this reduces the chance of anyone memorizing all of the answers.

5.6.2 Assumption 2 – Interval or ratio scale

The second assumption, which is also very critical (Mitchell and Jolley, 2010), is that the data I am analyzing is on interval or ratio scales. Qualitative data and ranks cannot be used, or else the assumption will not be met. The logic behind using these types of scales is that there is the same difference between each of the levels. To meet this assumption I have implemented a 7-point Likert scale for my dependent variables, which satisfies this assumption.

5.6.3 Assumption 3 – Normally distributed sample

The third assumption is that the sample which has been drawn from the population needs to be normally distributed (Mitchell and Jolley, 2010). This is not as big of a problem if it is not met, especially if there are group sizes of at least 30 participants. In my study the 30 participants per group is met, but I can also test the normal distribution using skewness and kurtosis. As seen earlier in this chapter, my data sample has met the criteria for both

skewness and kurtosis. I can therefore assume that my sample is normally distributed, and this assumption has been met.

5.6.4 Assumption 4 – Homogeneity in variances

The fourth assumption is the homogeneity in variances implies that the variance in all of the experiment groups should be the same (Mitchell and Jolley, 2010). In SPSS this is tested by Levene's test, and a significant result on the 95%-interval informs that there is a significant difference in variance. Levene's test of homogeneity of variance was tested for both affective and behavioral component of attitudes on all six experiment groups, and both of the Levene's tests came back non-significant. This indicates that the variance is the same across all of the groups, and therefore this assumption is met.

5.7 Hypothesis testing

Now that I have valid and reliable data, and the assumptions of ANOVA and independent samples t-test are met, I can proceed and test the models hypotheses that were listed in the theory chapter of this study. All of the results are presented in Appendix B. I will use the independent samples t-test when testing for significant results between two groups, whereas I will use ANOVA for more than two groups. The logic for this is that the independent samples t-test will show you if the difference between the groups is significant as well as the direction. The ANOVA will only test if the null hypothesis is true, in other words that there is no significant difference between the groups. An ANOVA has to be followed up with post-hoc tests, indicating which of the groups are significantly different from each other. In the independent samples t-test I will report the Cohen's coefficient d as well. This coefficient indicates whether or not the treatment effect size is big or small, by taking variability into consideration as well. A small effect is under 0.2, a medium effect is 0.5, and a large effect is over 0.8 (Mitchell and Jolley, 2010). This scale goes both ways, as this is purely based on which group is labeled 1 and 2. Therefore a negative Cohen's d would just indicate that group 2 has a higher mean than group 1. For the readers comprehension I have ordered the expected highest mean first in order in each hypothesis, so that Cohen's d scores always will be positive.

To test for effects on hypothesis H2b and H2c I needed to create one dichotomous variable for 2-D and 3-D (2-D = 0, 3-D = 1), and one for brand personality (no brand personality = 0, brand personality = 1). Additionally, one dichotomous variable was created for hypothesis H3a and H3c, separating involvement (no involvement = 0, involvement = 1).

5.7.1 Hypothesis 1 – H1a

Hypothesis H1a predicts that 3-D product visualization logos will score higher than 2-D logos on the affective component of attitudes. This indicates a more positive relationship for 3-D with affective attitudes, than it would for 2-D and affective attitudes. This was tested using an independent samples t-test, and the result suggested that attitudes did indeed differ between the 3-D product visualization logo ($M = 3.49$, $SD = 1.01$) and the 2-D logo ($M = 2.89$, $SD = 1.06$), $t(62) = 2.36$, $p = .021$, $d = 0.60$. The effect was over 0.5, indicating a medium to large effect size. The null hypothesis was therefore rejected, and support was found for H1a.

5.7.2 Hypothesis 2 – H1b

Hypothesis H1b predicts that 3-D product visualization logos will score higher than 2-D logos on the behavioral component of attitudes. This indicates a more positive relationship for 3-D with behavioral attitudes, than it would be for 2-D and behavioral attitudes. This was tested using an independent samples t-test, and the result for behavioral component of attitudes did indeed differ between the 3-D product visualization logo ($M = 3.19$, $SD = 1.15$) and the 2-D logo ($M = 2.40$, $SD = 1.07$), $t(62) = 2.86$, $p = .006$, $d = 0.73$. The effect was close to 0.8, which indicates a large effect size. The null hypothesis was therefore rejected, and support was found for H1b.

5.7.3 Hypothesis 3 – H2a

Hypothesis H2a predicts that the scores for the brand personality ‘excitement’ will be greater for the 3-D product visualization logo, than it will for the 2-D logo. To test this one independent samples t-test was run, and the results suggested that brand personality added to 3-D product visualization ($M = 4.98$, $SD = 0.71$) was not significantly higher than brand personality added to 2-D ($M = 4.88$, $SD = 1.24$), $t(60) = 0.36$, $p = .724$, $d = 0.09$. Therefore H2a was rejected.

5.7.4 Hypothesis 4 – H2b

Hypothesis H2b predicts that the relationship between 3-D product visualization logos and affective component of attitudes will be positively moderated by brand personality. I decided to test this relationship in a 2 x 2 factorial design, to be able to study the interaction effects between the choice of logo and choice of brand personality first. The ANOVA revealed a main effect on brand personality, $F(1, 122) = 5.88$, $p = .017$, and on the logo, $F(1, 122) = 12.17$, $p = .01$. Whereas the interaction term was not significant, $F(1, 122) = 0.059$, $p = .808$.

This suggests that adding brand personality ($M_{BP} = 3.65$) gives significantly higher scores than not adding brand personality ($M_{No-BP} = 3.19$) on the affective component of attitudes. H1a also finds more support in this test, showing that 3-D product visualization ($M_{3-D} = 3.75$) scores better than 2-D ($M_{2-D} = 3.09$).

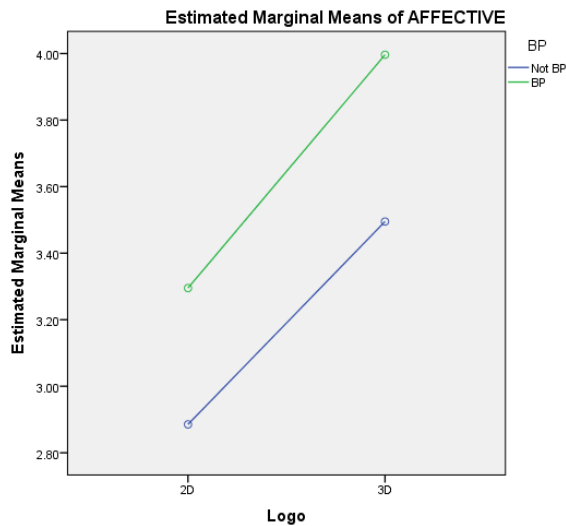


Figure 3 - Interaction term for affective attitudes between logo and brand personality

The figure above illustrates why the interaction term ended up insignificant, and that is because the two lines never cross. This was expected, and further this suggests that brand personality in fact does moderate the relationship between logo and affective attitudes. The rationale for this is that a shift upwards on the scale for both 2-D and 3-D product visualization, when adding brand personality, indicates a more positive and favorable score in the affective attitude.

To further test for moderating effects one independent samples t-tests was run testing for differences between 3-D product visualization without brand personality and 3-D product visualization with brand personality. The independent samples t-test indicated that scores were significantly higher for 3-D with brand personality ($M = 4.00$, $SD = 1.24$) than 3-D without brand personality ($M = 3.50$, $SD = 1.01$) on a 90%-level, $t(61) = 1.77$, $p = .082$, $d = 0.45$. Therefore support is found for H2b.

5.7.5 Hypothesis 5 – H2c

Hypothesis H2c predicts that the relationship between 3-D product visualization logos and behavioral component of attitudes will be positively moderated by brand personality. I used a 2 x 2 factorial design as in H2b, to be able to study the interaction effects between the choice of logo and choice of brand personality. The ANOVA revealed a main effect on brand personality, $F(1, 122) = 5.91, p = .016$, and on the logo, $F(1, 122) = 14.23, p = .00$. Whereas the interaction term was not significant, $F(1, 122) = .043, p = .836$. This suggests that adding brand personality ($M_{BP} = 3.28$) gives significantly higher scores than not adding brand personality ($M_{No-BP} = 2.79$) on the behavioral component of attitudes. H1b also finds more support in this test, showing that 3-D product visualization ($M_{3-D} = 3.41$) scores better than 2-D ($M_{2-D} = 2.66$).

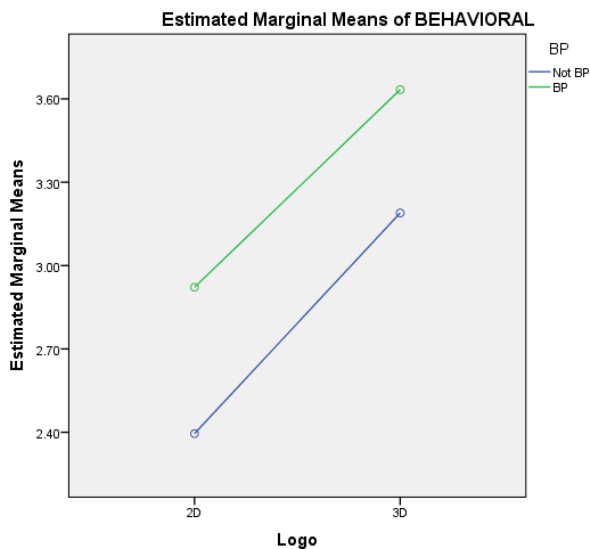


Figure 4 - Interaction term for behavioral attitudes between logo and brand personality

The rationale is the same for this model as for hypothesis H2b; accordingly I will go ahead and test the differences in means for 3-D product visualization with and without brand personality by using an independent samples t-test. The independent samples t-test indicated that scores were not significantly higher for 3-D product visualization with brand personality ($M = 3.63, SD = 1.20$) than 3-D product visualization without brand personality ($M = 3.19, SD = 1.15$), $t(61) = 1.50, p = .139, d = 0.38$. Therefore no support is found for H2c.

5.7.6 Hypothesis 6 – H3a

Hypothesis H3a tests if the relationship between 3-D product visualization and affective attitudes is moderated by involvement. The first step to be able to test the moderator effect is to use an independent samples t-test where the two involvement groups were paired together into one, controlled against the no-involvement experiment group. These results suggest that involvement ($M = 4.41$, $SD = 1.14$) has significantly better results on affective attitude than no involvement ($M = 3.49$, $SD = 1.01$), $t(95) = 3.90$, $p < .001$, $d = 0.80$. This moderating effect was also confirmed by two independent samples t-test where the control group ($M = 3.50$, $SD = 1.01$) was compared to high involvement ($M = 4.08$, $SD = 1.22$), $t(62) = 2.10$, $p = .040$, $d = 0.53$, and to low involvement ($M = 4.72$, $SD = 0.98$), $t(64) = 5.01$, $p < .01$, $d = 1.25$. The results suggest a moderating effect for involvement on affective attitudes, and that the effect sizes ranged from medium to very large. Support was found for H3a.

5.7.7 Hypothesis 7 – H3b

Hypothesis H3b predicts that the low involvement group will moderate the relationship between 3-D product visualization logos and affective attitudes more positively than the high involvement group. To test this I have used an independent samples t-test between the high and low involvement group. The results suggest that the low involvement group ($M = 4.72$, $SD = 0.98$) scores significantly higher than the high involvement group ($M = 4.08$, $SD = 1.22$), $t(62) = 2.34$, $p = .023$, $d = 0.59$. Therefore support for hypothesis H3b was found.

5.7.8 Hypothesis 8 – H3c

Hypothesis H3c tests if the relationship between 3-D product visualization and behavioral attitudes is moderated by involvement. The first step to test the moderator effect is to use an independent samples t-test where the two involvement groups were paired together into one, and controlled against the no-involvement experiment group. The results from the first step suggest that involvement ($M = 4.15$, $SD = 1.11$) has significantly better results on behavioral attitude than no involvement ($M = 3.19$, $SD = 1.15$), $t(95) = 3.99$, $p < .001$, $d = 0.82$. Again, as in H3a, I wanted to confirm this by two independent samples t-test where the control group ($M = 3.19$, $SD = 1.15$) was compared to high involvement ($M = 3.96$, $SD = 1.16$), $t(62) = 2.67$, $p = .010$, $d = 0.68$, and to low involvement ($M = 4.33$, $SD = 1.05$), $t(64) = 4.20$, $p < .01$, $d = 1.07$. The results suggest a moderating effect for involvement on behavioral attitudes, and that the effect sizes ranged from medium-large to very large. Therefore, hypothesis H3c was supported.

5.7.9 Hypothesis 9 – H3d

Hypothesis H3d predicts that the low involvement group will moderate the relationship between 3-D product visualization logos and behavioral attitudes more positively than the high involvement group. To test this I have used an independent samples t-test between the high and low involvement group. The results suggest that the low involvement group ($M = 4.33$, $SD = 1.05$) does not score significantly higher than the high involvement group ($M = 3.96$, $SD = 1.16$), $t(62) = 1.33$, $p = .189$, $d = 0.34$. Therefore hypothesis H3b was rejected.

5.8 Summary of hypotheses

Table 15 - Summary of the results on the models hypotheses

Hypothesis	Dir	F/t	Sig.	Effect Size (<i>d</i>)	Conclusion
H1a - 3-D Product Visualization logos will score higher than 2-D logos in affective attitudes.	+	2.36	.021	0.60	Supported
H1b - 3-D Product Visualization logos will score higher than 2-D logos in behavioral attitudes.	+	2.86	.006	0.70	Supported
H2a - There will be a stronger Brand Personality 'Excitement' score for the 3-D Product Visualization logo than the 2-D logo.	+	0.35	.724	0.09	Not supported
H2b - The Brand Personality 'Excitement' will positively moderate the relationship between 3-D Product Visualization and affective attitudes.	+	1.77	.082	0.45	Weak Support
H2c - The Brand Personality 'Excitement' will positively moderate the relationship between 3-D Product Visualization and behavioral attitudes.	+	1.50	.139	0.38	Not supported
H3a - Involvement will positively moderate the relationship between 3-D Product Visualization and affective attitudes.	+	3.90	<.001	0.80	Supported
H3b - Low Involvement will more positively moderate the relationship between 3-D Product Visualization and affective attitudes than High Involvement.	+	2.34	.023	0.59	Supported
H3c - Involvement will positively moderate the relationship between 3-D Product Visualization and behavioral attitudes.	+	3.99	<.001	0.82	Supported
H3d - Low Involvement will more positively moderate the relationship between 3-D Product Visualization and behavioral attitudes than High Involvement.	+	1.33	.189	0.34	Not Supported

6. Discussion

In this chapter of my thesis the results from the experiments will be discussed. This will include a thorough analysis of the hypotheses results, as well as managerial implications, limitations, and further research. The purpose of this study was to measure the findings of three essential research questions:

- 1. When a logo is presented using 3-D product visualization technique, does this affect the affective and behavioral components of attitudes?*
- 2. When a logo is presented using 3-D product visualization technique and is accompanied by a brand personality, does this affect the affective and behavioral components of attitudes?*
- 3. When a logo is presented using 3-D product visualization technique to an either high involvement group or low involvement group, does this affect the affective and behavioral components of attitudes?*

Based on prior literature, nine hypotheses were developed and tested in an experiment to seek the answers to these questions. These questions and their respective hypotheses will be discussed separately in the following sections.

6.1 Discussion of the Results and Theoretical Implications

6.1.1 The effect of 3-D Product Visualization logos

The first question proposes that there is a difference in effects on affective and behavioral attitudes by using a 3-D product visualization logo compared to a regular 2-D logo, and is answered by the hypotheses H1a and H1b. Both of the hypotheses predicted there to be more positive and higher ratings on the affective and behavioral attitudes when the subjects were presented with a 3-D product visualization logo. This was based off the results found in Debabbi, Daassi, and Baile (2010). The authors found that a 3-D product visualization advertisement would generate higher attitude scores. Lee, Li, and Edwards (2012) argue that a product which is presented by the 3-D product visualization technique will result in higher purchasing intention, which is part of the behavioral component of attitudes. Li, Daugherty, and Bocca (2002) support this in their study as well. Yim, Cicchirillo, and Drumwright (2012) used autostereoscopic and stereoscopic 3-D logos, but their findings were used as an indication that 3-D logos, in general, would score higher on enjoyment.

In hypothesis H1a and H1b I found empirical support for 3-D product visualization logos scoring higher on both the affective and behavioral component of attitudes. The relationship was positive as predicted. In general, a higher affective rating means that the subjects rated the 3-D product visualization logo as more enjoyable. A higher behavioral rating indicates that the respondents' intention to act was stronger. The effect of this is that respondents would pursue finding out more about the brand to a higher degree. This indication can be closely linked to purchase intention, as this is also measured by how great of an intention the respondents have to purchase a product. The effect size of these two results was over medium, indicating that the effects accounts for more than 25% of the variance.

6.1.2 The effect of Brand Personality

The second question proposes that effects could be found when adding brand personality to a 3-D product visualization logo, and that this could create higher scores on both affective and behavioral attitudes. This question was tested with hypotheses H2a, H2b, and H2c. The first hypothesis predicted that a brand created with the 3-D product visualization technique would score higher on Aaker's (1997) brand personality of excitement than a regular 2-D logo. This was predicted because a logo is an essential part of a company's branding, and a logo created with this technique would make an impression on the consumer that reflects that they believe it is more up-to-date and daring. The two other hypotheses predicted that by adding brand personality to a 3-D product visualization logo it would increase the effect on affective and behavioral attitudes. While the first two experiments were presented with limited information about the brand, the two experiments testing for brand personality gave more information which was intended to prime the subjects into seeing this brand as exciting.

Hypothesis H2a could not find any significant difference between the 2-D and 3-D product visualization logo, indicating that there were no real difference between these logo versions. However, I did find the means for the brand personality excitement to be sufficiently higher than those of other personalities. This suggests that it was in fact the information text that primed the subjects with the opinion that the brand was exciting, in addition to the brand name, shape of the logo, and the colors. It did not matter if the logo was moving in 3-D technology. A very important aspect to extract from this result is that a 3-D product visualization logo does not change how potential customers see a brand. In matter of fact, the personality of the brand remains completely unchanged. This implies that a logo can

be adapted to 3-D product visualization technology without making any type of sacrifice to the brand's already existing personality.

Hypothesis H2b and H2c tested the moderator effects that brand personality has on affective and behavioral attitudes. As seen in the results section, I found weak support for a positive moderating effect on the affective attitudes, and no support was found for the behavioral attitudes. These results suggest that brand personality will contribute towards a higher enjoyment and liking of the logo, but will not create a higher intention to act. Just because a logo is better liked, does not automatically imply that the respondents have the desire to look up more information about it. One reason the behavioral hypothesis failed was that the respondents were given an abundance of information about the brand itself before the study, and did not feel a desire or curiosity to learn more about it because their needs were met.

6.1.3 The effect of Involvement

The third question proposes that involvement can increase scores for both affective and behavioral attitudes when it is paired with a 3-D product visualization logo. This question was tested by the hypotheses H3a, H3b, H3c, and H3d. By using the elaboration likelihood model from Petty and Cacioppo (1981), I have created a group of high involvement subjects and a group of low involvement subjects. These two groups were primed in different ways to represent the two outer points of a continuum, similar to the original studies of the elaboration likelihood model (Petty and Cacioppo, 1981). To ensure the differences between high and low involvement, a series of additions were made. The argument quality was strong for the high involvement group, to replicate Petty and Cacioppo's study (1981b), whereas the argument quality was not as important for the low involvement group because they are interested in the information source instead (Petty, Cacioppo, and Schumann (1983). Therefore the low involvement group was endorsed by "professional athletes". A low involvement group is interested in the peripheral cues, which would include a logo, and it was expected that the results from the low involvement group would be better than for the high involvement group.

H3a is supported with a positive direction, suggesting that involvement does moderate the relationship between 3-D product visualization and affective attitudes. Without differentiating between the two types of involvement, the involvement itself did create significantly better results for the affective attitudes. This is just an indication that being in an

involvement group as opposed to being in the control group, will give better results on the affective attitudes. Similar to the moderating effect of brand personality, this could be a result of the control group receiving limited information, whereas both the low and high involvement group received a full advertisement. The control group therefore had much less information to go off of, and it should be assumed that their scores consequently turned out lower than the involvement groups.

Support is also found for H3b, which is supported with a positive direction. This result supports the theory that the low involvement group will use the logo as a peripheral cue and rate it higher in liking and enjoyment. This supports Petty and Cacioppo (1981) findings, and I can argue that the low involvement group focused more on the 3-D product visualization logo and the high involvement group focused more on the arguments that were provided for them. Given these results, the high involvement group did not suffer from the limitation that Bitner and Obermiller (1985) presented, which stated that they would use peripheral cues for central processing. By using professional athletes as the endorser for the low involvement group I found significant results between the groups, just as Petty, Cacioppo, and Schumann (1983) and Petty, Cacioppo, and Goldman (1991) did. The findings written by Petty and Cacioppo (1981) show that that a temporary change in attitudes is easier for the low involvement group to achieve than for the high involvement group; and this idea is supported by the results of my study.

H3c is supported with a positive direction, suggesting that involvement does moderate the relationship between 3-D product visualization and behavioral attitudes. As with hypothesis H3a, the two involvement groups were presented as one to see the differences as compared to the control group. These results provide information that involvement in general does increase the subject's intent to act, and that they are willing to find out more about the logo from the information that was given. This is contrary to my findings in brand personality, where I found no difference in behavioral attitudes. The advertisement and information given to the involvement groups actually caused them to gain interest and want to know even more about the brand, whereas the brand personality groups did not want to know more than the control group.

H3d is not supported, suggesting that there is no difference between the high and low involvement in the behavioral attitudes. With a non-significant difference, it would imply that both the high and low involvement group has higher scores than the control group (supported

by H3c), but that there is no difference between the groups. My findings are therefore contrary to Petty and Cacioppo (1981) that suggest that it is easier to make a temporary change in attitudes for the low involvement group. My findings suggest that both involvement groups found the information so appealing to them that both groups had the same willingness to act and find more information about the logo.

6.2 Managerial Implications

Findings from this study indicate that 3-D product visualization logos have a significant place in today's marketing. By implementing this type of technology, marketers should be able to see a higher enjoyment and interest in their brands, conceptualized by affective and behavioral attitudes. This advantage is especially strong now that this technology is new and relatively unused. The results might have been different if 3-D product visualization logos were a common technique and were more used in marketing. Further, the results remove all of the doubts marketers would have from being concerned that their brand personality might change if a 3-D product visualization logo were to be implemented. I could not find any differences in the degree of brand personality 'excitement' between 2-D logos and 3-D product visualization logos. The move to implement a 3-D product visualization logo can be compared to a first-mover advantage (Lieberman and Montgomery, 1988), and can gain a technological leadership by being the first to produce such a logo. Thereafter, their learning curve will be steeper since they will be able to test this on the market with the advantages of being first and unique, and with the convenience of this move creating newsworthy hype. A problem with the first-mover advantage is that other companies might sit back and study the results from the first-mover, and produce their own 3-D product visualization logo after they have seen how the market reacts. This is called the free-rider effect (Lieberman and Montgomery, 1988), and is the advantage for second-movers to the market.

Adding the brand personality of excitement will also positively affect the potential customers' enjoyment and liking of the logo, giving brands that try to conceptualize such a personality an advantage when creating and releasing their 3-D product visualization logo. Marketers should, on the other hand, notice that an increase in the liking and enjoyment did not increase the purchase intention or interest of knowing more about the brand. But one important observation for marketers is that their logo will be enjoyed, and in the long run this might affect potential customers to act based off their attraction to the brand.

Another implication of the results suggests that a 3-D product visualization logo creates higher affective attitudes for a group that has low involvement. Because the majority of TV watchers and internet users are in the low involvement group, this type of technology could prove to be quite effecting in creating awareness and attraction towards a logo. In the case of high involvement, I found that the involvement itself created better scores for both affective and behavioral attitudes, lowering the risk of high involvement groups to find the logo less enjoyable and fun than before. Also, both involvement groups were interested in finding out more about the logo and marketers should interpret this information as positive. Since both involvement groups were tested with realistic advertisements and the effects for both high and low involvement groups are purely positive, this indicates that there are no draw-backs from releasing a 3-D product visualization logo intended for either the low or high involvement group.

6.3 Limitations

After answering the research question of the study it is important to look at what could have been done differently, and what short comings the study had. These are called the study's limitations. The first limitation in this study is that I have used a laboratory experiment, instead of a field experiment. This has sacrificed the external validity and made it less generalizable to other situations. On the other hand, I wanted to be able to control for my variables, and increase the internal validity. As discussed in the methodology this is a trade-off, and it is not possible to prioritize both. This could be tested in future research by asking subjects to rate the 3-D product visualization logo after they have visited a web site without being prompted.

The second limitation of the study is the sample. The sample size did follow Mitchell and Jolley's instructions (2010) which suggests having about 30 respondents for each treatment in an experiment, but according to Texas Department of State Health Services (2015, March 6) there were 3.7 million people living in Texas between the ages of 20 to 29 in 2012. With a sample size of 190, this indicates just a very small percentage of the population. Mitchell and Jolley (2010) also give advice on the sample size for a survey, and on a 95% confidence level they suggest a minimum sample size of 384 respondents for a population of 3.7 million. This is twice the amount I have recruited to my experiment in total, which could indicate too small of a sample size. Due to limited time, this was the sample size I could recruit. By following the suggested experiment treatment sizes by Mitchell and Jolley (2010), the groups are adequate enough. I also had an overweight of females in my study, and this

does not represent the population from 2012 (Texas Department of State Health Services, 2015, March 6). If my sample should have matched the real population, I should have had 51% males and 49% women. In my sample I had 62% females. This needs to be taken into consideration when interpreting the results. The last limitation in the sample was that I did not control for race, as the population of Texas is split into three huge groups: Anglo (38%), Black (12%), and Hispanic (44%) (Texas Department of State Health Services, 2015, March 6). In my results I did not take these into consideration, and therefore I do not know from which of these races I have drawn my sample group. By taking these into consideration I would have to use another sampling technique, quota sample, but this would have been time consuming and could not be considered in my study.

Another limitation is how the subjects were recruited, seeing that they were included in the study based off of posting on social media, and a word-of-mouth type of approach. This type of recruitment would favor those who are active in social media, and exclude those who are not active. Channels such as LinkedIn and Facebook are used by marketers to expose potential customers to their brand, so these results might actually be more positive for marketers than previously thought since the subjects recruited were active on these types of social media.

In the studies I have only tested for effects on one logo, not multiple. This was an effect off the choices I had to make before creating the research model. By adding another logo I would have needed to add multiple experiment groups. As I have mentioned earlier, recruiting enough respondents can be a struggle, and therefore I chose to prioritize testing for the two moderator effects instead of adding more logos.

The last limitation of this study is that there was no check to ensure that the high and low involvement group was manipulated correctly. According to other research limitations in this field, it is difficult to check if a group is fully manipulated and really has a high or low grade of involvement. As with other research, I have to trust that the manipulation worked as intended.

6.4 Further Research

As previously mentioned, little research has been done in the field of 3-D logos and there is an abundance of further research that should be done. Based on my experiences from this study I have found a couple of suggestion for future research that I became aware of. The first idea is that my research was limited to a specific age group and geographical area, so therefore researchers should recreate this study and test for effects in other settings.

In the limitations section I stated that I only tested for results with one logo, and further research should expand the number of logos tested to see if the results found in my study are applicable across multiple logos. This would increase the generalizability of the findings, whereas my findings only apply to a certain set of logos.

Further research should test for the effects of all types of brand personalities. Since I only had time to test for one personality, I suggest other researchers continue with the other brand personalities to see the full extent of this variable. Another study should try to use already existing brands and measure their brand personality before the study. They should thereafter create 3-D product visualization logos for these brands and analyze the results. By using already existing brands, researchers can create evoke more realistic feelings for the subjects since opinions already exist for these brands.

In the theory chapter I urged researchers to test autostereoscopic and stereoscopic 3-D logos. The results in this area can gain a strong threshold since it could be a breakthrough in marketing in 3-D formats. Since studies have already found that products advertised in all kinds of 3-D formats gain better results than 2-D, it should be reasonable that such results could be found in 3-D logo research as well. Findings could open the doors for new formats of 3-D advertisements, and the humble logo could be adapted for the 3-D technology as well.

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Appendix A: Experiments

The following introduction information and demographics section are identical throughout each of the six experiment groups.

A.1 Information and Demographics

Information
<p>Survey for Master's Thesis in Marketing Welcome to my Master's Thesis survey. Please read the instructions and answer all questions with precision. If a question is unclear, please respond by answering with the neutral answer choice. Your help is greatly appreciated! Thank you!</p>

Age	Age
<20	<input type="radio"/> 1
21-23	<input type="radio"/> 2
24-26	<input type="radio"/> 3
27-29	<input type="radio"/> 4
>30	<input type="radio"/> 5

Gender	Gender
Male	<input type="radio"/> 1
Female	<input type="radio"/> 2

Status	Employment Status
Full-Time Student	<input type="radio"/> 1
Part-Time Student	<input type="radio"/> 2
Full-Time Work	<input type="radio"/> 3
Unemployed	<input type="radio"/> 4
Other	<input type="radio"/> 5

Education	Last Completed Education
High School/GED	<input type="radio"/> 1
Bachelor's Degree	<input type="radio"/> 2
Master's Degree	<input type="radio"/> 3
Doctorate Degree	<input type="radio"/> 4

State Residency	In which U.S. state do you currently reside?
	Open

A.2 Experiments 1 and 2

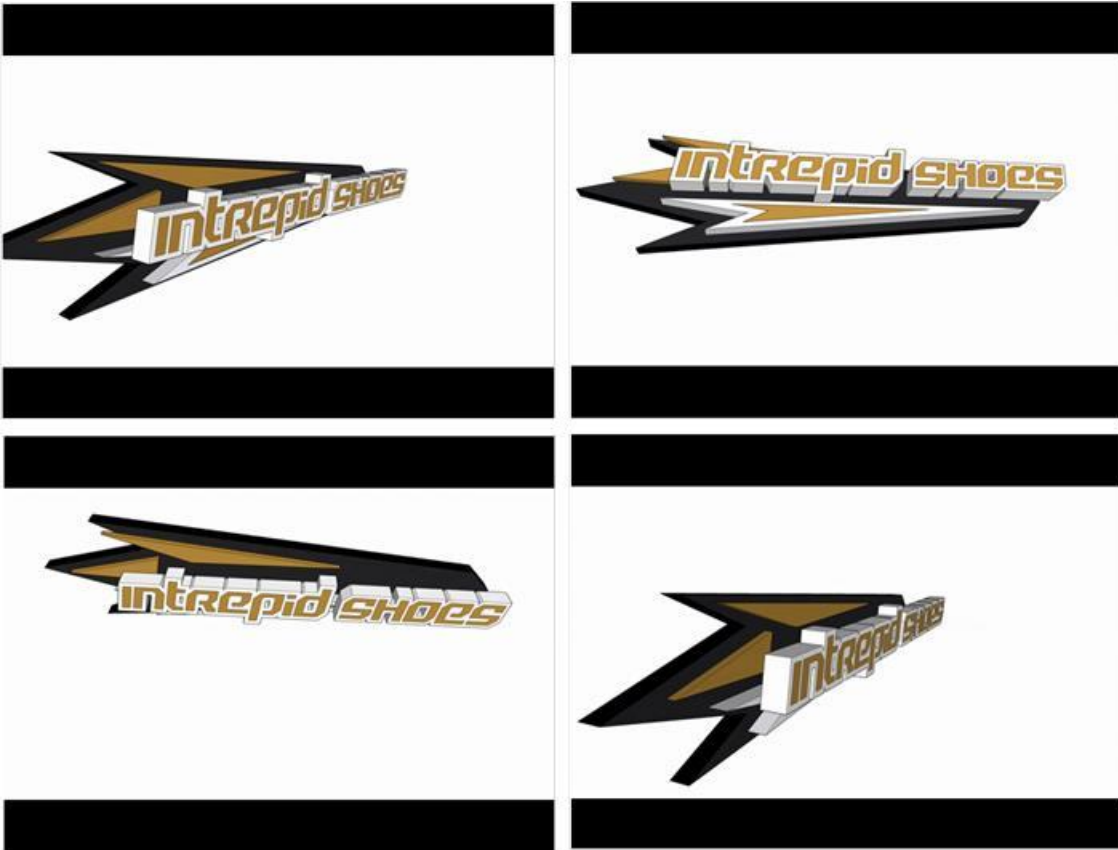
The following information and experiment questions are specific to experiment 1 and 2.

Information
"Intrepid Shoes" is a brand that is new to the American market. With this limited information, please view the logo and answer the questions according to your opinions.

Experiment 1: 2-D logo



Experiment 2: 3-D Logo



Affective	To what degree do you agree or disagree with the following statements?							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree	
	1	2	3	4	5	6	7	
This logo is visually appealing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I find this logo enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I find this logo to be fun.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I find this logo to be interesting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I find this logo to be boring.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
This logo has an incredible display.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6
I find this logo to be irritating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7
My visual sense is stimulated by the appearance of the logo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8
The logo captures my attention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9
I would enjoy seeing this logo again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10

Behavioral	To what degree do you agree or disagree with the following statements?							
	Strongly Disagree	Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Agree	Strongly Agree	
	1	2	3	4	5	6	7	
I am likely to recognize this logo if I saw it again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
The appearance of the logo makes me want to know more about the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I am interested to find out more about this brand because the logo stands out to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I am likely to remember this logo because of its interaction with the space around it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
If I were going to buy a pair of shoes, I would consider this brand when making my selection because of the impact the logo has made on me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5

A.3 Experiment 3 and 4

Information

"Intrepid Shoes" is a brand that is new to the American market. Please read the following information carefully and view the logo. Answer the questions according to your opinions.

Intrepid is a brand that started out by producing innovative athletic shoes for world class athletes. However, these shoes have gained an identity that reaches further than just the sports world. Intrepid shoes are no longer just for those who play the game, but for anyone who dreams big, seeks greatness, and faces their life with an indomitable attitude. The brand has engineered shoes with the best that technology can offer. Our designs maximize performance and comfort, and stay charged with the same style that earned our name on the street. So whatever legacy you seek- with Intrepid, you'll take it in stride.

Experiment 3: 2-D Logo with Brand Personality Text



Experiment 4: 3-D Logo with Brand Personality Text



Personality	How well do you think following words describe the brand?							
	Not-at-all descriptive	Undescripti ve	Somewhat undescriptiv e	Neither Descriptive nor Undescripti ve	Somewhat descriptive	Descriptive	Extremely descriptive	
	1	2	3	4	5	6	7	
Down-to-earth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
Honest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
Wholesome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
Cheerful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
Daring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
Spirited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6
Imaginative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7
Up-to-date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8
Reliable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9
Intellegent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10
Successful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	11
Upper-class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	12
Charming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	13
Outdoorsy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	14
Tough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	15

Affective	To what degree do you agree or disagree with the following statements?							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree	
	1	2	3	4	5	6	7	
This logo is visually appealing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I find this logo enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I find this logo to be fun.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I find this logo to be interesting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I find this logo to be boring.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
This logo has an incredible display.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6
I find this logo to be irritating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7
My visual sense is stimulated by the appearance of the logo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8
The logo captures my attention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9
I would enjoy seeing this logo again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10

Behavioral	To what degree do you agree or disagree with the following statements?							
	Strongly Disagree	Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Agree	Strongly Agree	
	1	2	3	4	5	6	7	
I am likely to recognize this logo if I saw it again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
The appearance of the logo makes me want to know more about the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I am interested to find out more about this brand because the logo stands out to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I am likely to remember this logo because of its interaction with the space around it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
If I were going to buy a pair of shoes, I would consider this brand when making my selection because of the impact the logo has made on me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5

A.4 Experiment 5 and 6

Information

"Intrepid Shoes" is a brand that is new to the American market. Please review the following information and logo carefully and answer the questions according to your opinions.

Experiment 5: 3-D Logo with High Involvement Text

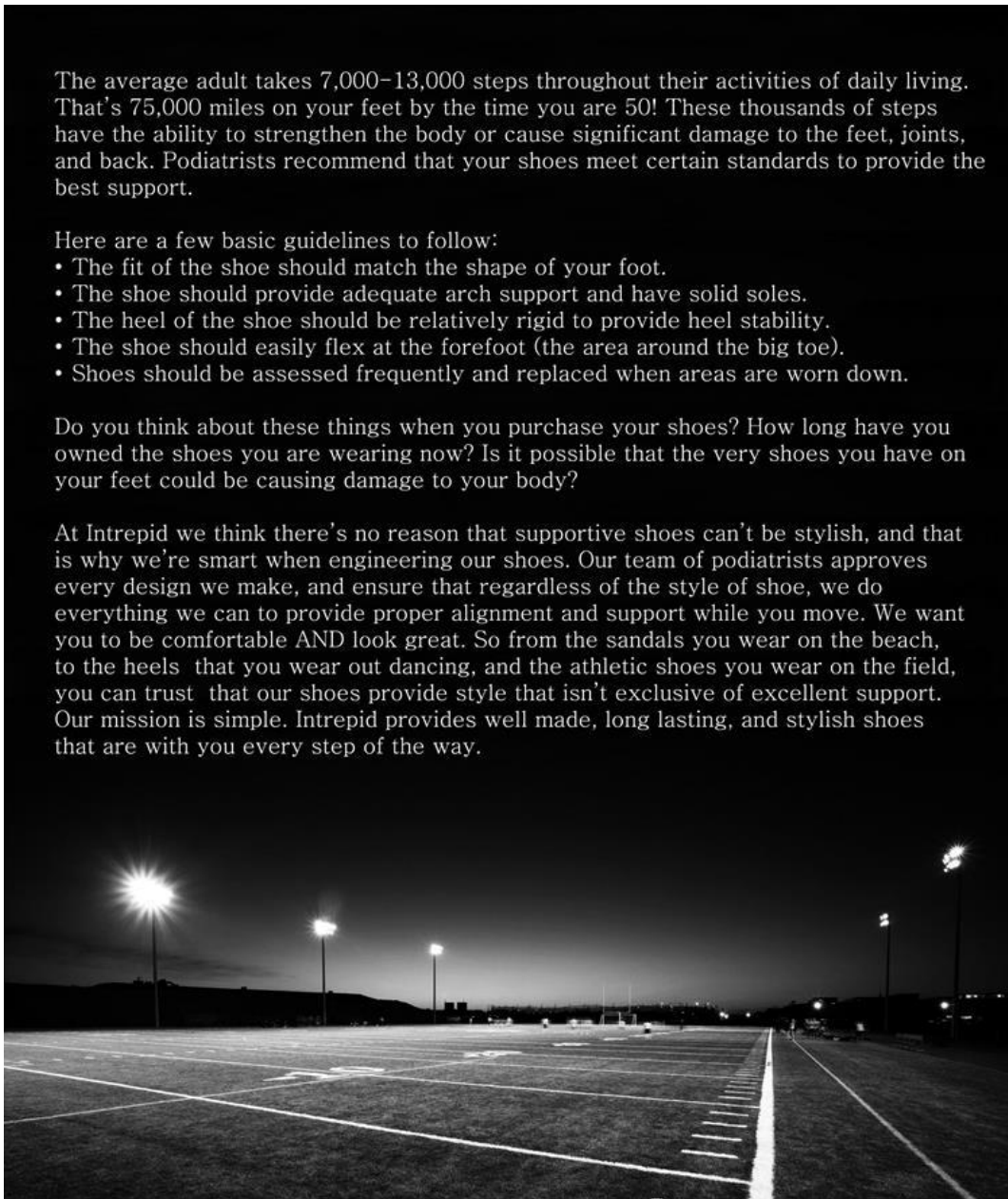
The average adult takes 7,000–13,000 steps throughout their activities of daily living. That's 75,000 miles on your feet by the time you are 50! These thousands of steps have the ability to strengthen the body or cause significant damage to the feet, joints, and back. Podiatrists recommend that your shoes meet certain standards to provide the best support.

Here are a few basic guidelines to follow:

- The fit of the shoe should match the shape of your foot.
- The shoe should provide adequate arch support and have solid soles.
- The heel of the shoe should be relatively rigid to provide heel stability.
- The shoe should easily flex at the forefoot (the area around the big toe).
- Shoes should be assessed frequently and replaced when areas are worn down.

Do you think about these things when you purchase your shoes? How long have you owned the shoes you are wearing now? Is it possible that the very shoes you have on your feet could be causing damage to your body?

At Intrepid we think there's no reason that supportive shoes can't be stylish, and that is why we're smart when engineering our shoes. Our team of podiatrists approves every design we make, and ensure that regardless of the style of shoe, we do everything we can to provide proper alignment and support while you move. We want you to be comfortable AND look great. So from the sandals you wear on the beach, to the heels that you wear out dancing, and the athletic shoes you wear on the field, you can trust that our shoes provide style that isn't exclusive of excellent support. Our mission is simple. Intrepid provides well made, long lasting, and stylish shoes that are with you every step of the way.



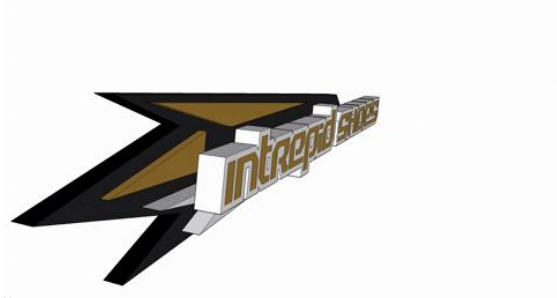


Experiment 6: 3-D Logo with Low Involvement Text

Intrepid started out on the field. We began as a company making kicks for America's pro athletes. The game stood on our shoes, and we stood for the game. Our team of innovators dared to dream big and pushed the limits of what a shoe could do for sports, and through their dauntless determination we spread from the field, to the pitch, and on the court. Just as it seemed that Intrepid would live in the sports arena forever....something changed.

Our shoes hit the scene and were spotted on the feet of creative types, activists, icons, rockers, tycoons, and rebels. It became America's shoe of choice and we couldn't be more proud. America knows that when something is great, it can't be contained. The infectious spirit that propels innovation is the driving force for Intrepid. Our customers have caught the bug, too. So whatever legacy you seek, with our shoes, you'll take it in stride.





Affective	To what degree do you agree or disagree with the following statements?							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree	
	1	2	3	4	5	6	7	
This logo is visually appealing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I find this logo enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I find this logo to be fun.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I find this logo to be interesting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I find this logo to be boring.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
This logo has an incredible display.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6
I find this logo to be irritating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7
My visual sense is stimulated by the appearance of the logo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8
The logo captures my attention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9
I would enjoy seeing this logo again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10

Behavioral	To what degree do you agree or disagree with the following statements?							
	Strongly Disagree	Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Agree	Strongly Agree	
	1	2	3	4	5	6	7	
I am likely to recognize this logo if I saw it again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
The appearance of the logo makes me want to know more about the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I am interested to find out more about this brand because the logo stands out to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I am likely to remember this logo because of its interaction with the space around it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
If I were going to buy a pair of shoes, I would consider this brand when making my selection because of the impact the logo has made on me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5

Appendix B - Results:

B.1 Demographics

Experiment Group:

Experiment Group					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	31	16.3	16.3	16.3
	2.00	33	17.4	17.4	33.7
	3.00	32	16.8	16.8	50.5
	4.00	30	15.8	15.8	66.3
	5.00	31	16.3	16.3	82.6
	6.00	33	17.4	17.4	100.0
	Total	190	100.0	100.0	

Age:

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-23	50	26.3	26.3	26.3
	24-26	94	49.5	49.5	75.8
	27-29	46	24.2	24.2	100.0
	Total	190	100.0	100.0	

Gender:

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	72	37.9	37.9	37.9
	Female	118	62.1	62.1	100.0
	Total	190	100.0	100.0	

Employment Status:

Employment Status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Full-Time Student	36	18.9	18.9	18.9
	Part-Time Student	15	7.9	7.9	26.8
	Full-Time Work	100	52.6	52.6	79.5
	Unemployed	17	8.9	8.9	88.4
	Other	22	11.6	11.6	100.0
	Total	190	100.0	100.0	

Last Completed Education:

Last Completed Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School/GED	50	26.3	26.3	26.3
	Bachelor's Degree	99	52.1	52.1	78.4
	Master's Degree	36	18.9	18.9	97.4
	Doctorate Degree	5	2.6	2.6	100.0
	Total	190	100.0	100.0	

State Residency:

Which state do you currently live in?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tex	1	.5	.5	.5
	Texas	125	65.8	65.8	66.3
	TX	64	33.7	33.7	100.0
	Total	190	100.0	100.0	

B.2 Descriptive Statistics

Descriptive statistics for affective attitudes

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Affective1	190	1	7	3.59	1.543	.222	.176	-.800	.351
Affective2	190	1	7	3.55	1.541	.159	.176	-.909	.351
Affective3	190	1	7	3.51	1.497	.258	.176	-.659	.351
Affective4	190	1	7	3.79	1.535	.191	.176	-1.067	.351
Affective5	190	1	7	4.46	1.420	-.368	.176	-.736	.351
Affective6	190	1	7	3.17	1.486	.363	.176	-.681	.351
Affective7	190	1	7	4.21	1.534	-.368	.176	-.809	.351
Affective8	190	1	7	4.17	1.486	-.204	.176	-.598	.351
Affective9	190	1	7	4.33	1.553	-.147	.176	-.947	.351
Affective10	190	1	7	3.43	1.492	.226	.176	-.622	.351
Valid N (listwise)	190								

Descriptive statistics for behavioral attitudes:

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Behavioral1	190	1	7	4.78	1.318	-.534	.176	.016	.351
Behavioral2	190	1	7	3.39	1.525	.116	.176	-1.043	.351
Behavioral3	190	1	7	3.29	1.493	.255	.176	-.957	.351
Behavioral4	190	1	7	3.98	1.453	.049	.176	-.704	.351
Behavioral5	190	1	7	2.96	1.460	.219	.176	-.914	.351
Valid N (listwise)	190								

Descriptive statistics for brand personality:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Down-to-earth	62	1	7	2.55	1.126	1.121	.304	3.005	.599
Honest	62	1	7	3.16	1.176	.926	.304	1.302	.599
Wholesome	62	1	7	2.95	1.299	.603	.304	.414	.599
Cheerful	62	1	7	3.60	1.408	.324	.304	-.606	.599
Daring	62	2	7	4.95	1.234	-.284	.304	-.143	.599
Spirited	62	2	7	5.18	1.153	-.558	.304	-.003	.599
Imaginative	62	2	7	4.74	1.292	-.158	.304	-.687	.599
Up-to-date	62	1	7	4.84	1.345	-.615	.304	.104	.599
Reliable	62	1	7	3.73	1.230	.166	.304	-.004	.599
Intelligent	62	1	7	3.74	1.159	.266	.304	.042	.599
Successful	62	1	7	4.05	1.234	.014	.304	.183	.599
Upper-class	62	1	7	2.29	1.136	1.753	.304	4.519	.599
Charming	62	2	7	3.52	1.156	1.046	.304	.928	.599
Outdoorsy	62	1	7	4.10	1.315	-.184	.304	.272	.599
Tough	62	1	7	3.66	1.342	.232	.304	-.403	.599
Valid N (listwise)	62								

B.3 Convergent Validity

Affective Attitudes

Before to the left and after to the right, after removing Affective5.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	1423.505
	df	45
	Sig.	.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.919
Bartlett's Test of Sphericity	Approx. Chi-Square	1361.717
	df	36
	Sig.	.000

Goodness-of-fit Test

Chi-Square	df	Sig.
77.995	26	.000

Factor Matrix^a

	Factor
	1
Affective1	.910
Affective2	.901
Affective3	.858
Affective4	.834
Affective6	.793
Affective7	.489
Affective8	.631
Affective9	.656
Affective10	.877

Pattern Matrix^a

	Factor	
	1	2
Affective1	.841	-.114
Affective2	.922	.007
Affective3	.750	-.159
Affective4	.700	-.204
Affective5	.390	.001
Affective6	.643	-.218
Affective7	.616	.156
Affective8	.163	-.672
Affective9	.025	-.920
Affective10	.813	-.099

Extraction Method:
Maximum Likelihood.

a. 1 factors extracted. 4 iterations required.

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Goodness-of-fit Test

Chi-Square	df	Sig.
126.318	27	.000

Behavioral Attitudes

Before to the left and after to the right, after removing Behavioral1.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.754
Bartlett's Test of Sphericity	Approx. Chi-Square	556.131
	df	10
	Sig.	.000

Goodness-of-fit Test

Chi-Square	df	Sig.
6.118	1	.013

Pattern Matrix^a

	Factor	
	1	2
Behavioral1	1.016	-.052
Behavioral2	.014	.939
Behavioral3	-.032	.931
Behavioral4	.391	.490
Behavioral5	-.065	.772

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 4 iterations.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.792
Bartlett's Test of Sphericity	Approx. Chi-Square	486.240
	df	6
	Sig.	.000

Factor Matrix^a

	Factor
	1
Behavioral2	.947
Behavioral3	.917
Behavioral4	.620
Behavioral5	.748

Extraction Method: Maximum Likelihood.

a. 1 factors extracted. 4 iterations required.

Goodness-of-fit Test

Chi-Square	df	Sig.
2.188	2	.335

B.4 Discriminant Validity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.930
Bartlett's Test of Sphericity	Approx. Chi-Square	2148.472
	df	78
	Sig.	.000

Goodness-of-fit Test

Chi-Square	df	Sig.
203.354	53	.000

Pattern Matrix^a

	Factor	
	1	2
Affective1	1.003	.107
Affective2	1.020	.129
Affective3	.762	-.111
Affective4	.886	.058
Affective6	.694	-.107
Affective7	.405	-.105
Affective8	.526	-.113
Affective9	.556	-.106
Affective10	.662	-.251
Behavioral2	.091	-.866
Behavioral3	.094	-.833
Behavioral4	-.038	-.664
Behavioral5	.075	-.686

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 8 iterations.

B.5 Reliability

Cronbach's Alpha – Affective attitudes

Reliability Statistics

Cronbach's Alpha	N of Items
.930	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Affective1	30.15	91.633	.869	.914
Affective2	30.19	92.189	.848	.915
Affective3	30.24	93.814	.814	.917
Affective4	29.96	93.310	.809	.917
Affective6	30.57	95.166	.769	.920
Affective7	29.54	103.435	.445	.939
Affective8	29.57	98.690	.636	.928
Affective9	29.42	96.965	.664	.927
Affective10	30.32	93.256	.840	.916

Cronbach's Alpha – Behavioral attitudes

Reliability Statistics

Cronbach's Alpha	N of Items
.883	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Behavioral2	10.24	14.055	.846	.810
Behavioral3	10.34	14.438	.828	.818
Behavioral4	9.65	16.748	.605	.901
Behavioral5	10.67	15.662	.715	.862

B.6 Manipulation Check

Brand Personality Means

		EXCITEMENT	SINCERITY	COMPETENCE	SOPHISTICATION	RUGGEDNESS
N	Valid	62	62	62	62	62
	Missing	128	128	128	128	128
Mean		4.9274	3.0645	3.8387	2.9032	3.8790
Std. Deviation		1.01463	1.00504	.95955	.90915	1.23370

B.7 Assumption of ANOVA

Assumption 4 – Homogeneity in variances

Homogeneity in variance between experiment groups for the dependent variable affective attitudes.

Levene's Test of Equality of Error Variances^a

Dependent Variable: AFFECTIVE

F	df1	df2	Sig.
.596	5	184	.703

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Experiment Group

Tests of Between-Subjects Effects

Dependent Variable: AFFECTIVE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	68.419 ^a	5	13.684	11.943	.000
Intercept	2662.552	1	2662.552	2323.891	.000
Experiment Group	68.419	5	13.684	11.943	.000
Error	210.814	184	1.146		
Total	2950.691	190			
Corrected Total	279.233	189			

a. R Squared = .245 (Adjusted R Squared = .225)

Homogeneity in variance between experiment groups for the dependent variable behavioral attitudes.

Levene's Test of Equality of Error Variances^a

Dependent Variable: BEHAVIORAL

F	df1	df2	Sig.
.337	5	184	.890

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Experiment Group

Tests of Between-Subjects Effects

Dependent Variable: BEHAVIORAL

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	79.694 ^a	5	15.939	12.859	.000
Intercept	2199.139	1	2199.139	1774.202	.000
Experiment Group	79.694	5	15.939	12.859	.000
Error	228.070	184	1.240		
Total	2514.375	190			
Corrected Total	307.763	189			

a. R Squared = .259 (Adjusted R Squared = .239)

B.8 Hypotheses testing

Hypothesis 1 – H1a

Group Statistics

	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
AFFECTIVE	1.00	31	2.8853	1.05506	.18949
	2.00	33	3.4949	1.00810	.17549

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
AFFECTIVE	Equal variances assumed	.006	.940	-2.364	62	.021	-.60964	.25790	-1.12518	-.09411
	Equal variances not assumed			-2.360	61.273	.021	-.60964	.25827	-1.12605	-.09324

Hypothesis 2 – H1b

Group Statistics

	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
BEHAVIORAL	1.00	31	2.3952	1.06610	.19148
	2.00	33	3.1894	1.15080	.20033

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
BEHAVIORAL	Equal variances assumed	.758	.387	-2.859	62	.006	-.79423	.27779	-1.34953	-.23894
	Equal variances not assumed			-2.866	61.990	.006	-.79423	.27712	-1.34819	-.24028

Hypothesis 3 – H2a

Group Statistics

	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
EXCITEMENT	3.00	32	4.8828	1.24432	.21997
	4.00	30	4.9750	.71121	.12985

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
EXCITEMENT	Equal variances assumed	7.076	.010	-.355	60	.724	-.09219	.25972	-.61170	.42733
	Equal variances not assumed			-.361	49.893	.720	-.09219	.25543	-.60527	.42089

Hypothesis 4 – H2b

Tests of Between-Subjects Effects

Dependent Variable: AFFECTIVE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	19.505 ^a	3	6.502	5.853	.001	.126
Intercept	1470.101	1	1470.101	1323.412	.000	.916
BP	6.530	1	6.530	5.878	.017	.046
Logo	13.514	1	13.514	12.165	.001	.091
BP * Logo	.066	1	.066	.059	.808	.000
Error	135.523	122	1.111			
Total	1623.247	126				
Corrected Total	155.028	125				

a. R Squared = .126 (Adjusted R Squared = .104)

Estimates

Dependent Variable: AFFECTIVE

BP	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Not BP	3.190	.132	2.929	3.451
BP	3.646	.134	3.381	3.911

Estimates

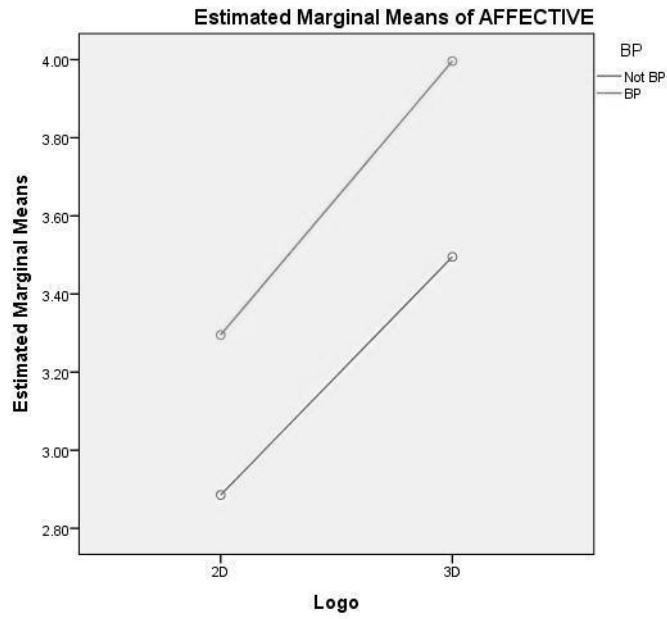
Dependent Variable: AFFECTIVE

Logo	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
2D	3.090	.133	2.827	3.353
3D	3.746	.133	3.482	4.009

3. BP * Logo

Dependent Variable: AFFECTIVE

BP	Logo	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Not BP	2D	2.885	.189	2.511	3.260
	3D	3.495	.183	3.132	3.858
BP	2D	3.295	.186	2.926	3.664
	3D	3.996	.192	3.615	4.377



Part 2 of the hypothesis with testing between with and without brand personality:

Group Statistics

Survey Group	N	Mean	Std. Deviation	Std. Error Mean
AFFECTIVE 2.00	33	3.4949	1.00810	.17549
AFFECTIVE 4.00	30	3.9963	1.23641	.22574

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
AFFECTIVE	Equal variances assumed	.940	.336	-1.771	61	.082	-.50135	.28315	-1.06754	.06485
	Equal variances not assumed			-1.753	56.081	.085	-.50135	.28593	-1.07411	.07141

Hypothesis 5 – H2c

Tests of Between-Subjects Effects

Dependent Variable: BEHAVIORAL

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	24.626 ^a	3	8.209	6.551	.000	.139
Intercept	1159.106	1	1159.106	925.029	.000	.883
BP	7.410	1	7.410	5.914	.016	.046
Logo	17.831	1	17.831	14.230	.000	.104
BP * Logo	.054	1	.054	.043	.836	.000
Error	152.872	122	1.253			
Total	1335.625	126				
Corrected Total	177.498	125				

a. R Squared = .139 (Adjusted R Squared = .118)

Estimates

Dependent Variable: BEHAVIORAL

BP	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Not BP	2.792	.140	2.515	3.069
BP	3.278	.142	2.996	3.559

Estimates

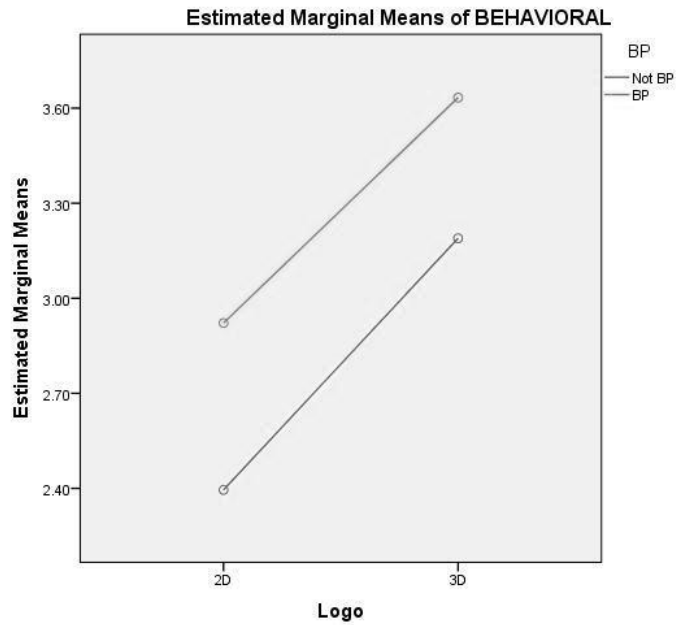
Dependent Variable: BEHAVIORAL

Logo	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
2D	2.659	.141	2.379	2.938
3D	3.411	.141	3.132	3.691

3. BP * Logo

Dependent Variable: BEHAVIORAL

BP	Logo	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Not BP	2D	2.395	.201	1.997	2.793
	3D	3.189	.195	2.804	3.575
BP	2D	2.922	.198	2.530	3.314
	3D	3.633	.204	3.229	4.038



Part 2 of the hypothesis with testing between with and without brand personality:

Group Statistics

	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
BEHAVIORAL	2.00	33	3.1894	1.15080	.20033
	4.00	30	3.6333	1.19938	.21898

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
BEHAVIORAL	Equal variances assumed	.020	.888	-1.499	61	.139	-.44394	.29619	-1.03621	.14833
	Equal variances not assumed			-1.496	59.858	.140	-.44394	.29679	-1.03763	.14975

Hypothesis 6 – H3a

Involvement and no-involvement groups tested for differences:

Group Statistics					
	Involvement	N	Mean	Std. Deviation	Std. Error Mean
AFFECTIVE	No Involvement	33	3.4949	1.00810	.17549
	Involvement	64	4.4115	1.14047	.14256

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AFFECTIVE	Equal variances assumed	.450	.504	-3.896	95	.000	-.91651	.23524	-1.38352	-.44950
	Equal variances not assumed			-4.054	72.200	.000	-.91651	.22610	-1.36720	-.46582

High involvement and control group teste for differences:

Group Statistics					
	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
AFFECTIVE	2.00	33	3.4949	1.00810	.17549
	5.00	31	4.0789	1.21554	.21832

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AFFECTIVE	Equal variances assumed	.328	.569	-2.097	62	.040	-.58390	.27846	-1.14054	-.02726
	Equal variances not assumed			-2.085	58.425	.041	-.58390	.28010	-1.14451	-.02330

Low involvement and control group teste for differences:

Group Statistics					
	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
AFFECTIVE	2.00	33	3.4949	1.00810	.17549
	6.00	33	4.7239	.98371	.17124

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AFFECTIVE	Equal variances assumed	.022	.882	-5.012	64	.000	-1.22896	.24519	-1.71879	-.73913
	Equal variances not assumed			-5.012	63.962	.000	-1.22896	.24519	-1.71879	-.73912

Hypothesis 7 – H3b

Group Statistics

	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
AFFECTIVE	5.00	31	4.0789	1.21554	.21832
	6.00	33	4.7239	.98371	.17124

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
AFFECTIVE	Equal variances assumed	.490	.487	-2.340	62	.023	-.64505	.27563	-1.19603	-.09407
	Equal variances not assumed			-2.325	57.770	.024	-.64505	.27746	-1.20050	-.08960

Hypothesis 8 – H3c

Involvement and no-involvement groups tested for differences:

Group Statistics

Involvement		N	Mean	Std. Deviation	Std. Error Mean
BEHAVIORAL	No Involvement	33	3.1894	1.15080	.20033
	Involvement	64	4.1484	1.10798	.13850

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
BEHAVIORAL	Equal variances assumed	.064	.801	-3.986	95	.000	-.95904	.24058	-1.43665	-.48143
	Equal variances not assumed			-3.938	62.633	.000	-.95904	.24354	-1.44578	-.47231

High involvement and control group tested for differences:

Group Statistics

Survey Group		N	Mean	Std. Deviation	Std. Error Mean
BEHAVIORAL	2.00	33	3.1894	1.15080	.20033
	5.00	31	3.9597	1.15668	.20775

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
BEHAVIORAL	Equal variances assumed	.000	.990	-2.669	62	.010	-.77028	.28855	-1.34709	-.19347
	Equal variances not assumed			-2.669	61.709	.010	-.77028	.28860	-1.34724	-.19333

Low involvement and control group tested for differences:

Group Statistics

Survey Group		N	Mean	Std. Deviation	Std. Error Mean
BEHAVIORAL	2.00	33	3.1894	1.15080	.20033
	6.00	33	4.3258	1.04673	.18221

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
BEHAVIORAL	Equal variances assumed	.765	.385	-4.196	64	.000	-1.13636	.27080	-1.67735	-.59538
	Equal variances not assumed			-4.196	63.433	.000	-1.13636	.27080	-1.67744	-.59528

Hypothesis 9 – H3d

Group Statistics

	Survey Group	N	Mean	Std. Deviation	Std. Error Mean
BEHAVIORAL	5.00	31	3.9597	1.15668	.20775
	6.00	33	4.3258	1.04673	.18221

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
BEHAVIORAL	Equal variances assumed	.756	.388	-1.329	62	.189	-.36608	.27546	-.91672	.18456
	Equal variances not assumed			-1.325	60.400	.190	-.36608	.27633	-.91875	.18659