

Building Resistance to Attitude Change Toward a Health Product

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my awareness, it contains no material previously published or written by another person, nor does it contain material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning except where credit is given.



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Ethical Approval

Auckland University of Technology Ethics Committee (AUTEC) has granted ethics approval on the 23rd of March 2015, as detailed in *Appendix One*, for a period of three years valid from 23rd March 2015. The AUTEC ethics application number is 15/50.

Abstract

Attitude has been directly linked to being a highly reliable predictor of behavior (Cacioppo & Petty, 1986). In the modern high pace marketing environment, consumers are constantly bombarded with messages, aiming to shift their attitude to favoring that of the message source. Attitudes toward brands and offerings are simply not held as strongly as cultural beliefs (Bither, Dolich, & Nell, 1971). As people are determined to maintain what they perceive as a correct attitude, they become especially vulnerable to attacks on these attitudes. To counter such attacks, marketers are left to utilize tools which can aid in developing a resistance to attitude change for their customers.

Although there are several attitude resistance techniques, attitude inoculation theory most effectively serves the purpose of withstanding attacks from conflicting attitudes (Bither et al., 1971). Inoculation treatment methods are comparable to that of medical vaccination, where a patient is exposed to a small, weakened dose of a pathogen. In this case, the pathogen is simply an opposing attitude. After exposure to these weakened opposing attitudes, when the subjects encounter real attacks on their belief, they will be far more resistant. This is because they can predict how the attack on their belief will be compiled and what arguments may be used (McGuire & Papageorgis, 1961). The inoculation treatment leaves subjects prepared to fight for maintaining their belief.

In this research, the perimeter of attitude maintenance is identified as 'loyalty'. The effects of inoculation treatment are investigated, with attention given to the moderators of gender, age, frequency of consumption and level of education. Furthermore, the target variable components of cognitive, emotional and behavioral intent are examined with the application of multiple regression analysis. The findings presented in this study show that the strength of the messages used in inoculation treatments are of high importance, where although strong counter-arguments have an initially strong impact, their effect quickly deteriorates. However, weak counter-arguments, although initially not as effective, are shown to be more influential over a longer period of time.

This research validates the successes of inoculation treatment and its effectiveness over longer periods of time. Furthermore, the long term process of such inoculation treatments may lead to allowing an attitude, although weak, enough time to become implicit for the subject, not only explicit. Once an attitude becomes implicit, it is a highly reliable indicator of behavior. In a marketing context, this leads to a higher likelihood of compliance behavior.

Chapter One: Introduction

1.1 Research Issue:

'The lazy organism' as first coined by McGuire 1969 does not refer to our choices as to how we spend our Sundays, but rather the process of how our cognitive systems manage information processing. 'The lazy organism' refers to the finite cognitive resources we as humans have and our limited ability in processing details of our environment and interactions. People simply do not possess the desire or the capability to critically process all of the information we encounter. To do so would be require a lot of cognitive resources, and be inefficient for everyday living (Miller, Maruyama, Beaver, & Valone, 1976). Despite not always having either the capability or the desire to assess information accordingly, people do bear the desire to hold correct attitudes. This is due to incorrect attitudes having a high prevalence to lead to harmful behavior or other negative outcomes (Festinger, 1957). While initial attitudes are formed by basic drivers such as pleasure and pain (Fishbein & Ajzen, 1975) as our cognitive awareness develops, the motivation behind the formation of attitudes also becomes more diverse (Fishbein & Ajzen, 1975).

The study of attitude bears great value in the field of marketing due to the well documented link between attitudes and behavior (Cacioppo & Petty, 1986; Fishbein & Ajzen, 1975). The primary goal of marketers is not only to lure people to a vested interest, but also to maintain their use of the offering and ideally brand loyal consumers (Elliott, Rundle-Thiele, Waller, & Paladino, 2004). Understanding not only how attitudes are formed but also how to employ the best strategy(s) for persuading people to maintain these attitudes, especially in the highly competitive marketing

space, becomes an essential advantage. Employing an effective resistance to attitude change strategy, such as inoculation treatment, leads to advantageous marketing benefits.

When inoculation is applied, the subject is usually exposed to weakened version of a contradictory argument to one's belief. This theory is adopted from the medical field, and is designed to act as a vaccine, aiming to build tolerance to an attack. Inoculation treatment allows for great advantages in the marketing environment such as the use of two-sided advertising (Eisend, 2006), the spread of inoculation through word of mouth (Compton & Pfau, 2009) and social influences (Langner, Hennings, & Wiedmann, 2013), increases in trust toward the message source (Chaiken, 1987) and other benefits that will be discussed in depth throughout this research. Ultimately, increasing resistance to attitude change leads to a lengthening of product life cycles and greater profit thanks to the increase in customer loyalty (Kim, Morris, & Swait, 2008).

Should a given positive attitude go beyond the offering and be linked directly to the brand, the attitude may become as strong as a cultural truism, which can be very difficult to challenge. Through achieving resistance to counter-attacks from competitors, the loyalty of the consumer even becomes cheaper for the brand to maintain, with an estimated 1% increase of loyalty being equivalent to 10% cost reduction (Kim et al., 2008).

1.2 Expected Research Contributions

There is an abundance of knowledge about attitudes and the formation processes of attitudes, and current literature has provided a concrete foundation for understanding the development of resistance to attitude change. However, there is still debate as to the influential properties of the leading theorized methods, in particularly that of inoculation treatment. There is currently very little attitude inoculation research framed in a marketing context. Psychology and communications literature suggests inoculation treatment to be the most effective strategy in the development of resistance to attitude change (Bohner, 2011; McGuire, 1961) primarily due to its ability to help people withstand unavoidable counter attacks. This research provides a realistic marketing scenario, with a thorough investigation of the effect of attitude inoculation on consumers under marketing conditions.

In an academic context, this study builds on ideas presented in existing inoculation theory literature, aiming to find more conclusive evidence in relation to the effects of time, message strength and message framing. The research aims to build on the shortcomings of previous research (McGuire, 1961; Tannenbaum, Macaulay, & Norris, 1966), providing not only a relatable commercial context, but also ensuring there is sufficient time delay testing and clear differentiation between message strengths and message framing.

As there has been little literature that has applied inoculation theory in a marketing context. The framing of the marketing scenario used in this research translates more directly to marketers wanting to employ inoculation theory in practical scenarios. Through investigating the findings of this research, marketers will be able to gain an understanding of how to build more robust defensive marketing strategies (Bither et

al., 1971). This research provides marketers and academics alike with such insights as: How do strong and weak inoculation counter argument treatments fare in maintaining loyalty?; What are the effects of a longer period of time on attitude inoculation treatments?; Is the response to inoculation primarily driven by cognition, emotion or behavior?; Do different genders respond distinctly to the various message strengths?; How do different age groups react to inoculation treatments with different message strengths?; Does the frequency of use become a factor in the success of attitude inoculation?

1.3 Thesis organization process

This thesis is comprised of six chapters. First, core literature on attitude formation is explored in order to develop an understanding of the driving mechanisms behind attitudes and behavior. Following this, literature on resistance to attitude change, predominantly surrounding inoculation theory is reviewed. This results in drawing hypotheses and relevant research structure. The methodology used in this study is then discussed in depth, following a full analysis and report of the data drawn from the experiment. A discussion is then presented, addressing theoretic and practical aspects of the findings as well as reviewing the limitations of the study and providing future study ideas.

Chapter Two: Literature Review

This chapter consists of a detailed topical review of previous research conducted within the framing of this study. Theoretical and empirical studies are investigated for the purpose of the literature review. The fundamental processes of attitude formation are firstly defined. Secondly, the immunization analogy of attitude inoculation treatment is discussed. This including reviews of two key parameters identified to affect attitude; the passage of time and the strength of the inoculation treatment message. The concept of inoculation treatment within a marketing environment is then assessed.

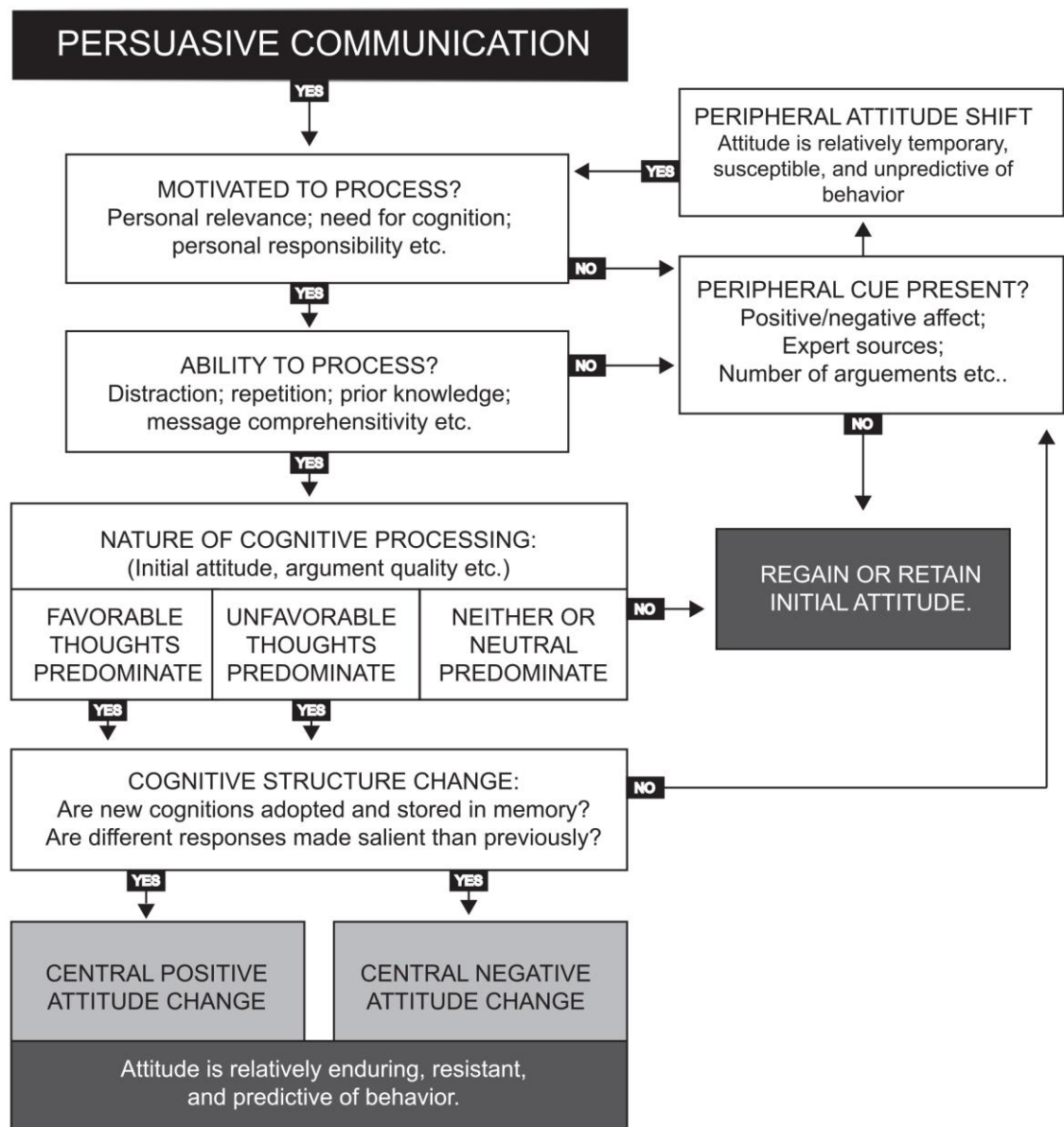
2.1 Attitude Formation:

One of the strongest and most distinctive concept in social psychology is the variable known as attitude. Attitudes have been referred to as the drivers of one's self-concept (Pomerantz, Chaiken, & Tordesillas, 1995). Undoubtedly, the concept of what we know as attitude has been shown to be a mediating variable for knowledge acquisition and behavioral change (Morris, Woo, & Singh, 2005). A person's attitude is defined by their positive or negative view toward a stimulus. These views, formed through direct observation or a reasoning process, develop beliefs that become the platform to automatic formation of an attitude toward a new stimulus. (Fishbein & Ajzen, 1975) According to Cacioppo and Petty (1986), attitudes are the general evaluations people hold in regard to themselves, other people, objects and issues. The attitudes people hold will in turn guide their behavior, emotional and intellectual processes as well as subjective influences. Attitudes, whether they are neutral, negative or positive are generally formed with the association of new offerings, ideas, beliefs and other cues to

existing opinions based on previous information (Fishbein & Ajzen, 1975). This is an ongoing cycle that is said to start with primary motives of pleasure and pain. As we grow older and our ability to analyze evidence grows, new motives may develop.

The heuristic-systematic model of social information processing developed by Shelly Chaiken (1987) as well as the elaboration likelihood model conceptualized by Cacioppo and Petty (1986) illustrate linear frameworks of attitude formation and attitude change. One end of the scale is home to central processing, while at the opposite end we find peripheral information processing. Though the scale presents polar opposites in the attitude formation process, people are not limited to one method. Attitudes can be formed at any level on the scale, and may also be formed through a combination of multiple cues each belonging at different points on the scale. It is also necessary to identify the elements, such as the delivery mode, which affects the message processing choice (Mayer & Tormala, 2010). When the medium is fast paced or of low involvement, it is more ideal to process messages peripherally, while when conditions are of more importance and present less urgency, one can afford to process the message through the central route. The Elaboration Likelihood Model of Persuasion (Cacioppo & Petty, 1986) process is shown in *Figure 2.1*.

Figure 2.1: The Elaboration Likelihood Model of Persuasion



Central processing is the side of the elaboration likelihood model that refers to situations where the subject will be considerate of the information presented and carefully analyze its merits. When a message is perceived to be personalized, or when there is a high level of responsibility, people will likely turn to processing messages through the central route (Cacioppo & Petty, 1986). A similar process may also be observed to be applicable in situations where a person has high prior knowledge.

They will consider the effort previously put into the development of their current attitude, and will be more critical when their beliefs are strongly challenged. When someone becomes accustomed to frequent challenges toward an attitude they hold, they will attempt to avoid counter-arguments and will hold strong biases toward negative repeat information. Stimulating central route thinking is thus more ideal when being exposed to a favorable message as a person will be open to strong information (Cacioppo & Petty, 1986). Attitudes that form as a result of central processing are generally stronger and will show greater prediction of behavior and greater resistance to attacks. When an attitude is stronger, it is easier to access, thus it will be more likely to guide behavior.

According to the elaboration likelihood model, the peripheral route is quite different to central processing. Under peripheral conditions, people rely on quick cues to form their attitudes. This process is said to be mindless, heuristic, shallow and automatic (Cacioppo & Petty, 1986), with attitude formation in such a condition being based more on primitive “feel-good” responses. Due to the limited cognitive and environmental resources people have, most of our attitudes are initially formed through the peripheral route. The likelihood of choosing peripheral processing over the central route will likely increase where there are time delays, distractions or when there is low motivation for a person to use high resources in forming their attitude (Cacioppo & Petty, 1986). When processing information peripherally people are more influenced by the message source and delivery. Most often attitudes developed through peripheral processing are not strongly held thus more vulnerable to counter-arguments. Because these beliefs are not strongly held, they are also poor predictors of a person’s behavior.

In a real-world environment, variables will combine to form an overall persuasion context. An example may be the characteristics of a message source helping a person decide if the message should be carefully scrutinized (McGuire & Papageorgis, 1961). People rarely process information in perfect conditions (Fishbein & Ajzen, 1975). This is due to environmental and personal limitations. In order to validate their attitudes, people will often evaluate their opinions through comparing them with the opinions of others (Cacioppo & Petty, 1986). Under heuristic conditions, peripheral cues such as the social status of the message source will be of higher importance when the subject is unmotivated to spend cognitive resources, or has low prior knowledge about the stimulus.

2.2 Changes in Attitude

Previous literature agrees that attitudes may change over time. This may largely be due to associations being forgotten or new information being evaluated, replacing the level of importance in contrast to previously held information (Fishbein & Ajzen, 1975). The perceived relationship between a stimuli and an existing attitude may also change as links may be drawn to weaker or stronger comparisons that were previously unrealized, unknown or forgotten. Cacioppo and Petty (1986) identify three attitude development levels: Pre-conventional, where evaluations are mostly based on feelings; conventional; where social laws and rules are firstly considered and post-conventional, under which clearly held personal morals are most important. As people mature or grow to care for a subject more, they will become more critical as they acquire more issue-relevant information on the given topic.

When a consumer is exposed to a new offering, their initial evaluations will likely be shaped by basic factors through peripheral cue. This is because marketers must compete with all the other attention grabbing conditions consumers face in everyday life. Despite the control advertisers have over the arguments presented to their target, the process in which views are shaped as a response to the stimuli will likely be unique to each individual (Fishbein & Ajzen, 1975). A neutral attitude may be changed into a positive attitude based on favorable cues, however, these positive cues may lead to negative cues being triggered when there is exposure to subsequent information or analysis. To ensure the success rate of a message, advertisers will use arguments which are more likely to evoke shared truths within their target segment population. Furthermore stimulating interest in a product can also be achieved through providing trials, creating a personalized experience (Kempf, 1999). This method is especially successful when dealing with utilitarian products that are cognitive in nature

2.3 The immunization analogy

Once someone has invested in developing a strong attitude, they will desire to defend their attitudes (Festinger, 1957). The easiest way for one to do so is through avoidance of attacks on held beliefs. In the modern marketplace however, consumers are constantly bombarded with advertising. This makes it much more difficult for people to avoid exposure to counterarguments challenging their attitudes toward brands and products (Kelly & Garcia, 2009). Although methods such as supportive therapy, where a held attitude is reinforced with positive arguments toward the belief, will aid in strengthening attitudes, the effects will not be as strong and long lasting as inoculation. Inoculation is conceptualized from the practice of vaccination in the medical industry (McGuire & Papageorgis, 1961). This is where a subject is exposed to

a small, weak and controlled dose of a virus. The weak exposure allows the person to build a resistance. When later encountering heavy exposure, the subject will more likely be unaffected by the virus, or in the least, recover much quicker than a person that had not been vaccinated. Inoculation theory transfers this method into the social psychology arena, where results are directly applicable within a marketing context.

McGuire and Papageorgis (1961) propose that in high forced exposure situations, beliefs that may be strongly held but not often challenged will be likely to collapse. In order to prevent this, inoculation treatment is presented as a solution. Not only would attitudes strengthen against stronger versions of the weakened attacks subjects are exposed to, attitudes would also strengthen against subsequent attacks, even against new arguments. For inoculation to have a strong effect, subject participation is necessary. McGuire and Papageorgis (1961) find that that as the subject is now accustomed to their beliefs being attacked, through the practice of participation in defending their attitude, one will become able to create their own future defenses.

Creating immunization marketing campaigns holds the potential for great benefits.

Despite obvious strengths of the immunization approach, current research has produced somewhat inconsistent results. Bither et al. (1971), for instance, attribute inoculation treatment to allow for the development of multi-sided advertising. Such a process results in the breaking down of previously conceived customer segmentation barriers. In such case, an advertisement can be designed to both strengthen the beliefs of existing consumers while also proposing new arguments challenging the attitudes of non-users. Two-sided messages are also said to significantly enhance the perceived novelty of the message (Eisend, 2006). This, however, may not be ideal in all markets, or with all product groups (Bither et al., 1971). Inoculation may also encourage spread

through word of mouth. Compton and Pfau (2009) show that people will be more likely influenced by messages that stimulate discussion within groups. The necessary and perceived message strength however may differ amongst people, with potentially negative effect when the message strength is not correctly generalized.

Inoculation messages that are the same or similar to an attack, (inoculation-same) may have their success partly attributed to the content. However, as future attack themes cannot always be forecast in reality, inoculation-different messages, where the inoculation treatment is of different subject or to attacks is a better measure of the success of inoculation treatment. McGuire (1961) states that “pre-exposure to the weakened counterargument may, by making the subject more aware of the vulnerability of his belief, stimulate him to develop supporting arguments and to think up and refute other counterarguments” (p.333). The content of inoculation treatment is not deemed to be important, but rather the effect inoculation has on motivation.

In their research, L. Tormala, Z. and Petty (2002) found that resisting an attack that is perceived to be strong will likely increase the original belief. This is so long as the subject realizes that they had resisted an attack. Such findings shed more light on inoculation theory, but also pose an array of questions. How strong should counter-arguments be? Will a mild counter-argument be more effective in the long run as opposed to a strong counter-argument in the short run? How should the strength of a counter-argument be best measured? Will inoculation indeed have lasting effects, or is it but a temporary prevention method?

2.4 Recent research on Attitude Resistance

Understanding resistance to attitude change best aids in helping people overcome dysfunctional resistance (Kunda, 1990), while also providing a better understanding of maintaining healthy attitudes and healing unbalanced behavior driven by unhealthy attitudes. Under a marketing context, understanding resistance to attitude change will aid companies in retaining customers, resisting new competitor attacks and utilizing a new toolset for extending product life cycles. (Bither et al., 1971) Currently, inoculation treatment is thought to be the best method in building resistance to attitude change. However, it too, while indeed robust, does not go without limitations.

Despite a vast amount of research having been dedicated to the topic of attitude formation, our overall understanding of inoculation treatment and building resistance to attitude change is still at an elementary stage. As such, new research aims to shed light on the lesser-understood characteristics of inoculation theory. If the counter-arguments presented for instance, are deemed as being too strong, the inoculation treatment itself may lead to an undesired attitude change (McGuire & Papageorgis, 1961). The strength of the counter-argument should be tested before it is applied, however although the strength of an argument may be generalized, its impact on individuals is somewhat unpredictable, as what makes an argument 'strong' can differ from person to person. Next to message strength, the passage of time is yet another key element that has been found to influence untreated attitudes and attitudes supported with inoculation treatments respectably (Compton & Pfau, 2009; Ivanov, Pfau, & Parker, 2009; Pfau et al., 2006). The passage of time, for instance, allows additional, external cues such as social primers to influence a newly formed attitude. As implicit and explicit attitudes are formed through unique reasoning systems, time

must pass for an attitude to become both implicit and explicit (Rydell & McConnell, 2006). As discussed previously, attitudes are formed through both emotional and cognitive processes (Cacioppo & Petty, 1986). The following section is a further investigation of emotional and cognitive processes, with the properties of time and message strength in regard to attitude and inoculation treatment also receiving assessment.

2.5 Key external effects on attitudes

2.5.1 Time

When a brand is attacked, it may respond with general or targeted rebuttals through counter advertising. However, such defensive methods are response driven and not designed to prevent opinions from changing prior to such attacks, nor are they necessarily effective in defending against future attacks. Furthermore, attacks from competitors may not only be executed in multiple sessions over varying periods of time, but may also include multiple attack messages (Ivanov et al., 2009). This leads to great costs in defending a brand, as unique counter-arguments may be necessary for each attack when employing response tactics. As such, inoculation treatment makes for a great solution in dealing with multiple attacks in a pre-emptive fashion. As mentioned by Bither et al. (1971), inoculation treatment can lead to subjects creating their own counter-arguments and it also leads to people getting used to the notion of their beliefs being attacked. In any case, being prepared, expecting to eventually have a belief attacked, is part of the overall inoculation effect.

Current research has found an unsettled dispute over the effects of inoculation treatment over time. In the original works of inoculation theory McGuire and Papageorgis (1961) proposed that the effects of inoculation treatment would reduce over time. However, Ivanov et al. (2009) argue that earlier experiments had tested the longitudinal implications of inoculation treatment over relatively short periods of time; minutes, hours, days at most. More recent studies using longer time periods have shown inoculation treatment to be more effective than previously thought, with the decay rate of the treatment although indeed being present, occurring at a slower rate than first anticipated. The realization of such a finding brings attention to the possibility of inoculation treatment providing a new attitude with enough time without rejection, allowing the attitude to become implicit, likely replacing the older attitude (Petty, 2006).

While studying the effects of time over inoculation treatment, different conditions must be considered. The more recent study by Ivanov et al. (2009) has conducted experimentation with such varying conditions factored in. The study took place over four stages. Starting with questionnaires designed to assess prior attitudes and involvement levels, a total of 452 participants had completed all phases of the experiments, on selected topics such as marijuana legalization and violent content in TV programs. Groups were split by inoculation message type, while in order to more accurately test the effects of time, significantly longer re test timescales of up to 44 days were employed in contrast to older experiments where retest timescales were very short.

In this recent experiment, contrary to predictions, all inoculation treatments were found to be stable over the experiment timeline. When considering the message type, traditionally it was thought inoculation messages against a belief would have slower decay rates than treatments supporting a belief (McGuire, 1961). The findings of Ivanov et al. (2009) have presented evidence that validates this notion. However, more specifically, this is identified as a more steady reduction rather than a strengthening over time effect as originally thought. To further increase the strength of inoculation treatment, especially inoculation-different inoculation treatments, increasing its effect over time, the use of reinforcement messages was also shown to be highly beneficial.

While the research of Ivanov et al. (2009) give greater reasoning to the processes behind time in effect to inoculation treatment, the experiment condition used is not defined within a marketing context. As indicated by Bither et al. (1971), people do not usually hold attitudes toward brands and products as strongly as they do cultural views as in the case of this experiment, generating cultural opinion leading to law-making and taboo practices. As such, the decay effects of inoculation treatment may vary depending on the strength of the initial attitude. Another shortcoming of this experiment is the use of people that may or may not be actively involved with the stimulus questions.

The Federal Trade Commission (FTC) encourages the use of actual company names in advertising when referring to competition in order to improve customer information (Belch & Belch, 2012). Although the level of such practice varies in different regions, the increased use of the Internet and other communication channels in our modern information age insures the increase of both comparative advertising as well as consumer driven comparison. As such, attacks on a brand are more common and may

potentially come from numerous sources over different periods of time. While returning fire with return comparative strategies, such a method will do little in increasing a company's own image (Ivanov et al., 2009). Due to the likelihood of inoculation treatment leading to the self-creation of counter-arguments for future attacks (McGuire, 1961), inoculation treatment appears to be the best candidate for a successful strategy. Employing the use of inoculation treatments will lead to achieving both an improvement of the image of the given brand and return fire onto attacking competitors. However, the questions that come forth are how does inoculation fare against multiple attacks, and is inoculation treatment indeed the best counter measure for preparation to multiple attacks over time?

Where original studies had only looked at single attacks, Ivanov et al. (2009) explain that in reality, competitors are most likely going to use multiple attacks. The first question put forth by Ivanov et al. (2009), is whether the effect of inoculation-different messages will increase, decrease or remain unchanged when the subject is exposed to more than one attack? Secondly, will there be a difference in the effect of inoculation treatment when comparing the effect of multiple attacks on supportive, refutational and restoration treatments? To address such questions Ivanov et al. (2009) test both inoculation-same and inoculation-different attack messages. This was under refutational, supportive, restoration and control message conditions, where the control is no treatment, with a sample size of 113 participants. The subjects of cars and televisions made in Japan or the United States are used as topics, aiming to identify the impact of multiple attacks on country of origin image under the various previously

specified conditions. 36 treatment messages were used, nine for each product type and country association. In turn, eight attack messages were used.

The experiment is spread over four phases, eight weeks apart. In the first phase original attitudes toward the countries of origin and products were checked. In phase two, inoculation treatments were initiated. In the third phase, all participants were presented with counter attitudinal attacks. Finally, in the fourth stage, participants were presented with a secondary attack message. The results of the experiment showed that the strength of the original inoculation treatment will dissipate over time. While this may become problematic over longer periods of time, inoculation treatment still proves to be dominant in contrast to other strategies designed to resist attacks. Inoculation refutational messages proved to be more significantly more effective than supportive strategies, restoration strategies and no strategy at all. (Ivanov et al., 2009) The importance of inoculation is also further highlighted when Ivanov et al. (2009) shows the treatment's ability to withstand pressures from various sources. This is especially valuable in a mass media environment where attack messages will likely come from numerous sources.

In addressing the issue of the original treatment strength weakening over time, Ivanov et al. (2009) turn to (McGuire, 1961), who presents booster message sessions as a possible solution. These 'booster messages' are generally weaker reinforcement messages of the original inoculation and may even include counter-arguing activities where the individual is actively motivated in defending their belief. Research directly addressing booster messages conducted by Tannenbaum et al. (1966) fell short of statistical significance however. This shortcoming, as seen by Ivanov et al. (2009), could be attributed to poor choice in timing of the booster message as well as a lack of

motivation for participants to engage in the booster message. (Pfau et al., 2006), investigated booster messages further, showing that booster sessions had the greatest positive impact on lowering decay of inoculation-same treatments. The booster messages in this newer research were administered between five and 21 days following inoculation. This contrasts greatly with McGuire (1961) where booster message are applied merely two hours after the original inoculation treatment, and the Tannenbaum et al. (1966) application of booster messages seven days after initial treatment.

Booster messages as such are heavily reliable on the timing of their delivery. When administered too quickly after original inoculation treatments, their impact will most likely be weak as the subject has low motivation to engage in the message. Pfau et al. (2006) find counter-arguing effects of inoculation treatment to work immediately. Following such a strong attitude resistance building method with a booster message may not only have insignificant impact but even potentially come off too strongly, thus weakening the effect of the treatment, leaving it to be met with resistance (McGuire, 1961).

The effect of booster messages only being significant in relation to inoculation-same treatments is best explained by again looking to the elaboration likelihood model. In-depth, different messages require subjects to conduct central processing, thus will require more attention and cognitive resources (Cacioppo & Petty, 1986). As the nature of booster messages is to build on what one had already been exposed to in depth, the high involvement necessary in order to process booster-different messages is simply too demanding.

Under both central processing conditions and peripheral processing conditions, the message source plays a great role in how a message is registered and evaluated (Cacioppo & Petty, 1986). People hold the desire to maintain what they perceive as correct attitudes (Festinger, 1950). Because of this, threat toward an attitude will trigger an internal motivation to strengthen the attitude, thus allowing a person to be able to maintain what they consider the 'correct' position (Pfau et al., 2006). Furthermore, for someone to change their attitude, they must not only put in effort in reconsidering their stance, but also assess the time and resources spent on the initial development of the said attitude. Having access to counter-arguments as provided through the practice of inoculation treatment will strengthen the attitudes. While these effects are well documented in an array of literature, a newfound attribute of inoculation and its effect over time is the impact that the said treatment has not only on the subject who had received the original treatment, but also the extended relay of the message they may pass onto others. In their 2009 study, Compton and Pfau (2009) unveil the effect of inoculation spreading through word of mouth communication.

When looking at medical vaccination, the treatment message may sometimes be passed onto others. The medicine itself may be passed on, or immunized parents may pass on their newfound immunity genetically to their children. In the same sense, Compton and Pfau (2009) go on to compare attitude inoculation treatments being passed on through social networks. As inoculation leads to increasing treated people's desire to talk about the given issue, the effect of inoculation over time becomes more valuable. Truly successful campaigns will be those that evoke further discussion (Compton & Pfau, 2009) leading to the creation of a self-driving desire to maintain the given attitude.

2.5.2 Message Strength

The strength of an inoculation treatment message is also a factor that comes to question when assessing the success of inoculation. As explained through the elaboration likelihood model (1986) Petty and Cacioppo state that stronger messages will require more cognitive resource use from the subject. When the message is too strong, it may become ignored if the persons targeted are not prepared to invest their attention. In their study on attitude certainty, L. Tormala, Z. and Petty (2002) found that in cases where people believe they have successfully resisted a strong attack, certainty in their initial belief can increase. This effect is due to the conclusion that if a strong attack has failed to change people's minds, the attitude they hold must be correct and worth defending further. L. Tormala, Z. and Petty (2002) found that when this occurs, the initial attitude will be more resistant to future attacks while also leading to predictable behavior.

A solution to the problem of undesired defensive effects bestowed by the resistance to strong messages may be the use of two-sided messages. These are messages accompanied by a small amount of negative information toward the offering. Addressing the shortcomings of the offering leads to the message being seen as less threatening and more honest, leading to the enhancement of positive cognitive responses and an increase in source credibility (Eisend, 2006). The strength of the message is determined by several elements including the message source (Cacioppo & Petty, 1986) . Especially under conditions where people are not able to commit their full attention, source trustworthiness is critical in standing out from the clutter of our advertising environments.

Lemanski and Lee (2012) debate that a source perceived as trustworthy is more beneficial than a source perceived as having a high level of expertise. This conclusion was arrived to through building upon the research of L. Tormala, Z and Petty (2004) and conducting an experiment with 125 undergraduates. The experiment contained both high and low cognitive load conditions which were achieved through asking the subjects to respectively remember a small or long list of numbers after being exposed to the initial statement. A split of high and low source trustworthiness was also used, with 34 additional subjects taking part in a pre-test to determine this. After an initial statement on the product, followed by the cognitive load exercise, subjects were exposed to an advertisement.

A control group of 14 participants was used; this group was not exposed to the advertisement as the goal was to identify the impact of the advert. The subjects then were asked to list as many counter-arguments as they wished. Both the quantity and the quality of counter-arguments were analyzed (Lemanski & Lee, 2012). This experiment successfully showed that source trustworthiness is more important in regards to attitudes than perceived expertise of the source. The decision to make certain purchases can be interpreted as a sign of ones attempts at achieving or maintaining their desired social identity (Langner et al., 2013). As such, purchasing behavior enables consumers to categorize themselves. Attitudes and beliefs are often shared in social groups. Although not absolute, often attitudes within a group are shared enough to create a group characteristic. Based on these attitudinal attributes role models and social leaders from within the group, or perceived to be in line with the group will largely influence the group members' purchase making decisions. These

factors add further value to the theory of the spread of inoculation treatments over time through word of mouth as identified by Compton and Pfau (2009).

2.5.3 Attitude formation (Emotion vs Cognition)

The way a message is presented will most likely lead to determining how that message is assessed. Mayer and Tormala (2010) propose a 'think' versus 'feel' approach, where messages that appeal to a critical, factual thinking analysis are more effective when the message recipient is cognitively orientated. In turn, when a message is packaged in ways designed to trigger feelings, targets that are affectively oriented will more likely be persuaded (Mayer & Tormala, 2010). Cultural and gender difference for instance can drive this process. Men for instance, report being less emotionally orientated, while women report the opposite (Mayer & Tormala, 2010). Although as such, men are less responsive toward the emotional appeal generated by an advert for instance, that is not to say that their thought-based preference does not have an emotional foundation. When taking into account the research presented by Morris et al. (2005), although message framing may be presented in a think or feel context as explored by Mayer and Tormala (2010), we cannot rule emotion out of the think process, but rather accept the treatments as to being driven by unique emotional elements.

When presented with an argument, emotion is also responsible for biased assimilation, which deals with the acceptance or denial of information. Biased assimilation is come to through accessing favorable hypotheses, rules and past behavior driven by a defensive memory search in an attempt to support the desired conclusion. Ahluwalia (2000) suggests those who hold strong attitudes are likely to be more defense motivated over accuracy motivated. Biased assimilation is similar to defense by avoidance (McGuire, 1961), as when faced with evidence that is too difficult to reject,

biased assimilation becomes ineffective (Ahluwalia, 2000). In theory, inoculation treatment will help in strengthening biased assimilation as exposure to weakened versions of counter-arguments may result in the subject being better prepared to deal with strong evidence against their belief. In a marketing environment, if a message is perceived to be too strong, people may simply ignore it (Mayer & Tormala, 2010). The desired emotional response driven by message framing must not to evoke such strong emotional reactions that the message is ignored, especially when targeting non users. Emotion may be at the core of all decision making, not only for those attitudes formed through the peripheral route as proposed by the Elaboration Likelihood Model (Cacioppo & Petty, 1986), but also for attitudes and behavior developed through the central route. Morris et al. (2005) bring attention to cognition having an emotional core, and the possibility of content processing giving rise to emotions that will evoke longer-lasting changes in attitudes. Matching a message frame to subjects' psychological state can therefore aid in increasing involvement which in turn can lead to persuasion (Cacioppo & Petty, 1986). A message framing link to peoples' psychological states has also been found to increase the processing power of the given message.

As the message becomes easier to understand, subjects are less likely to resist the message (Brinol, Petty, & Tormala, 2006). Because the way a message is interpreted is driven by different degrees of underlying emotion processes, it is necessary for marketers to understand the role of emotion within the attitude formation framework. While some attitudes are purely emotionally driven, others will take form due to emotions being guided by cognitive evaluations (Morris et al., 2005).

Under marketing conditions, priming a certain attribute will increase the chances of a whole advert being interpreted based on the primer (Yi, 1990). The moods triggered by the advert will likely extend to the product and or brand. Evaluation of the offering will then include the attributes associated with the mood(s) illustrated (Bettman & Mita, 1987). The emotional presentation of an advert therefore does not simply aid in presenting the message but can in itself become an effective communication method (Yi, 1990). Just as an advert may present a positive context and gain favor from playing on emotions linked to positive attitudes, it too may unintentionally trigger negative emotions should the overall message be out of synch. Where for instance an advert may be trying to sell on the beauty of a car through positive imagery, should the music placed in the advert be perceived as aggressive, that negative communication may take presence and become the dominant link to the manufacturer brand.

When examining attitude change, we must address the different underlying mechanisms of implicit and explicit attitude change and the implications surrounding respectable attitudes when considering inoculation treatments. The success of the treatment may be dependent on the relative framing to fitting that of the manner in which the attitude is held (Rydell & McConnell, 2006). Explicit attitudes are attitudes that are held consciously and generally formed and change through 'fast-learning, rule based reasoning' (Rydell & McConnell, 2006, p. 995). These explicit attitudes are responsive to deliberate processing goals and will only predict deliberate target-relevant judgments. Implicit attitudes however, are formed through slow-learning and association based reasoning. Implicit attitudes are linked to spontaneous behavior (Sloman, 1996). The findings in the research conducted by Rydell and McConnell (2006) come to a disagreement with the assumption drawn by the standard ELM, that

once an attitude is changed, the original attitude no longer exists (Cacioppo & Petty, 1986). Rydell and McConnell (2006) show that different attitudes may be held at the same time, but separated by explicit or implicit accessibility.

Petty (2006) builds further on the attitude formation process, identifying that when an old attitude change takes form, the old attitude becomes implicit while the new attitude is in an explicit state. The new attitude will be dominant in circumstances where the subject has time to think, while situations where there is little time for reflection will be dominated by the original, now strictly implicit attitude (Petty, 2006). This process occurs as implicit attitudes take a longer time to change (Rydell & McConnell, 2006). Providing there is no successful counter-argument, the new attitude will eventually become both implicit and explicit, resulting in the elimination of the old attitude. Although people do indeed hold the desire to maintain non conflicting attitudes (Fishbein & Ajzen, 1975), such a tendency is not always absolute and can be limited by conflicting forces effecting the person (McGuire, 1960). More than one attitude may be held at one time.

The way an attitude is formed and the motivation one has in holding an attitude should also be taken into consideration when attempting to change the particular attitude. Millar (1990) found significant evidence supporting the notion that attitudes formed through emotional processes, would be more likely to change when attacked by logical arguments. Likewise, attitudes formed primarily through cognitive processes were found to more likely change when attacked by emotional appeals. According to Millar (1990) holding a particular attitude fulfils certain function(s). Formatting a message that appeals to the function which drives the desire to hold the attitude will then have a higher likelihood of achieving change. 'When attempting to modify an

attitude, the most effective procedure is to match the persuasive message to the motives of the individual for holding the attitude' (Millar, 1990, p. 227).

2.6 Inoculation in the marketing environment

The marketing environment is a wild jungle at all levels. New competitors are constantly attempting to enter markets while existing brands will offer new products while having aggressive marketing campaigns competing for consumer attention (Kelly & Garcia, 2009). Larger brands may even become conglomerate entities, entering multiple industries. The company Virgin for example, is a fierce competitor in the travel industry, having hotels, rail, air travel and now – space rockets. Virgin also holds a firm stronghold in the entertainment industry, with radio stations, record labels, publishing agencies and casinos under its belt. One shouldn't leave out Virgin's telecommunications and insurance conquests either ("Virgin," 2015). Virgin is not alone, with many other top tier brands from around the world having extensive industry portfolios.

The introduction, growth and maturity stages of a product's life cycle will enjoy consumers developing favorable attitudes toward the offering and/or brand. However, the challenge comes to extending the product life cycle, delaying the decline stage (Bithier et al., 1971; Elliott et al., 2004). In today's fast pace, information age environment, consumers are constantly bombarded by new brands, governmental messages, social movements, trends, and other such phenomena, attacking other advertisers competing for attention by any means possible.

However, having the attention of consumers is simply not enough as this may very well be limited and temporary. Even repeat purchases do not represent loyalty as repeat

purchases may be situational (Jensen & Hansen, 2006). A company must aim to gain a favorable attitude from consumers, striving for true loyalty. In 2001, a study by Bain & Co found having a 5% increase in customer loyalty can raise a company's profitability by 40% to 95%, while having a 1% boost in customer loyalty results in a 10% cost reduction (Kim et al., 2008). Attitude strength is identified as the mediating factor, where affective and cognitive attitudes drive commitment. Developing loyalty from customers' aids in prolonging the maturity stage of the product life cycle, leading to a slower decline stage.

Bither et al. (1971) propose marketers should not divide an audience by users and non-users, rather marketing and advertising should be adjusted to using two-sided messages. Doing so will have the potential to slash marketing costs. A two-sided message includes both negative and positive information (Eisend, 2006). To ensure favorable results, the strength of the negative message should not be higher than the strength of the positive message. Two-sided messages are perceived as being more novel. As such two-sided messages motivate a higher level of attention from consumers. The inclusion of negative information also gives the source a more truthful appearance, potentially leading to an increase in trust from consumers (Eisend, 2006).

These messages reduce negative cognitive responses and have a positive impact on purchase intent while generating favorable attitudes (Eisend, 2006). Two-sided messages are an established inoculation treatment technique, where existing users attitudes will be strengthened and through the application of inoculation treatment consumers will build a resistance to competitor attacks while in the same effort, the two-sided messages will also work in attracting non users (Bither et al., 1971). Up to

fifty percent of a message may contain moderate negative information before there is an adverse effect on positive attitudes (Eisend, 2006).

A persuasive message that induces change will likely produce further changes on logically related opinions and or issues that are not directly mentioned. In a marketing context this poses great danger as a product or offering that is thought to be related may suffer from an unforeseen attack (McGuire, 1960). As previously discussed, inoculation has great advantages when compared to other attitude strengthening techniques. The inoculation treatment itself can be applied prior to an attack, leaving one prepared to having their attitude challenged. Inoculation allows subjects to develop their own counter-arguments through the practice of having their attitude attacked, (Bither et al., 1971) which leaves them better prepared in resisting multiple and repeat attacks (Ivanov et al., 2009).

The evidence presented for the application of inoculation treatments in a marketing environment shows the potential for reducing marketing costs while also leading to increases in profits through being a strong strategy in both the development and maintenance of favorable attitudes. The increase of true loyalty leads to favorable predictable behaviors such as brand championing, positive word of mouth, and repeat purchases (Jensen & Hansen, 2006). Loyalty is a direct construct of favorable attitudes. With all the noise in the marketing environment, inoculation treatment is the best method for maintaining and nurturing favorable attitudes.

2.7 Chapter summary

Chapter two has offered a comprehensive review of the relevant literature used in constructing the basis of this study. Said literature has been compiled as the grounding platform for the development of the hypotheses of this study, investigating the impact of inoculation treatment counter-argument strength over a period of time in a marketing context further detailed in Chapter Three.

Chapter Three: Hypotheses

The following chapter examines the hypotheses that are proposed in this research.

These hypotheses were devised through investigation of the existing research mentioned in Chapter Two. Under marketing conditions, Chapter Three presents an overview of the constructs scrutinized in this study. First the theoretical model and the conceptual framework are presented where the marketing environment is revised, as inoculation message strengths and effects of time are reviewed. Secondly, attitude processes leading to the targetable variable of loyalty as well as identified moderators are presented.

3.1 Conceptual Framework and Theoretical Model

This research aims to contribute in further building the understanding of inoculation treatment within a marketing context through the examination of the effects of strong inoculation treatment arguments versus weak inoculation treatment arguments. Much of the current prior research can be criticized for the short duration of time applied to the testing of longitudinal effects of inoculation treatment. With re-testing being conducted in as little as hours after the initial experiments, the testing of a longer period of time such as in this study is necessary. Pfau et al. (2006) bring attention to the counter-arguing process to be an internal one. As such, a delay is necessary in order to ensure the inoculation treatment process is activated.

The effect of time is tested in this study, seeking to provide additional evidence toward the impact of inoculation treatments after a more extended period of time. The relevance of various common potential moderators including age, consumption and education levels are also tested. Where applicable, the findings may even be

generalized and relevant to areas other than marketing. An extensive analysis of attitude formation literature and attitude inoculation treatment literature, along with supporting marketing concepts, have led to the conceptualization of 'loyalty' as the target variable of this study (Jensen & Hansen, 2006; Kim et al., 2008). What is hereafter and throughout referred to as 'loyalty' is the resulting effect of factors contributing to the likelihood of maintaining a given attitude post inoculation treatment.

3.2 Inoculation within a marketing context

This study aims to build upon ideas presented in previous inoculation research. While current research on attitudes is robust, there is need for further understanding and testing of inoculation theory concepts. Most importantly, inoculation theory at present has not been widely tested under marketing conditions. A better understanding of inoculation treatments in marketing may lead to rethinking marketing strategies, leading to more efficient strategies in customer retention, while also simultaneously attracting non users (Bither et al., 1971). Because consumers' attitudes are often and frequently attacked in standard marketing settings, consumer attitudes are generally not held as strongly toward products as they are toward cultural beliefs such as religion and politics (McGuire & Papageorgis, 1961). Therefore, to gain an improved understanding of the effects of inoculation treatment as proposed by McGuire and Papageorgis (1961), inoculation theory must be scrutinized specifically under such said marketing conditions.

3.3 Main Hypotheses

3.3.1 Message Strength

The first variable to consider is the strength of the message presented in an inoculation treatment. Based on the elaboration likelihood model of persuasion, (Cacioppo & Petty, 1986) strong arguments should produce more agreement, however only when the message can be processed without distractions. As such, in a marketing environment where consumers are constantly targeted by competitors while also distracted by everyday activities, a weak argument may be more easily noticed and processed (Bither et al., 1971; Lemanski & Lee, 2012). This research is set to validate the condition under which the strength of inoculation treatment argument, strong or weak, may best be applied. The correct strength of the inoculation treatment message is vital to a campaign as incorrect application of message strength can have adverse effects such as creating support toward an undesirable attitude, rather than building resistance toward the said argument (L. Tormala, Z. & Petty, 2002).

Hypothesis 1 (H1): There will initially be a higher significant positive relationship between the strong argument and loyalty in contrast to the weak counter-argument.

3.3.2 Time

The effects of the inoculation treatment are known to weaken over time, however as discussed in Chapter Two, inoculation treatment has longer lasting effects than supportive therapy and other attitude resistance models (Bither et al., 1971; McGuire, 1961). This research seeks to set itself apart from existing studies through giving more thorough attention to the longitudinal effects of inoculation treatment. It has been

established that the positive effects of inoculation treatment decay over time, however this occurs at a slower rate than supportive therapy or any other treatment (McGuire & Papageorgis, 1961; Pfau et al., 2006). A common shortcoming of much of the previous inoculation treatment research has been the abrupt timing of retesting. Often the retesting of subjects had occurred no more than several days after the initial testing (Pfau et al., 2006). The element of time may have profound effects on the prediction as behavior.

Rydell and McConnell (2006) identify a distinction between implicit and explicit attitudes. A person may simultaneously hold conflicting attitudes in the two spectrums. As implicit attitudes develop and change more slowly than explicit attitudes, when an inoculation treatment is applied, a new attitude may be allowed to last long enough to also become implicit, not just explicit (Rydell & McConnell, 2006). Because of the often sporadic market environment, it is not uncommon for distractions to occur during the purchase decision making process, leading to decisions being made through implicit processing (Cacioppo & Petty, 1986; Rydell & McConnell, 2006). Therefore, under such circumstances, a weaker argument that require less cognitive processing can become more effective in guiding behavior.

This study predicts the strong argument group and the weak argument group will show significantly different effects. When compared, although the strong counter-argument group will have a higher significance, the weak argument group will have longer standing results.

Hypothesis 2 (H2): The weak counter-argument will have longer lasting effects in contrast to the strong counter-argument, also showing a slower rate of decay.

3.3.3 Attitude processing (Cognitive, Emotional, Behavioral)

Attitudes affect information processing and are the primary drivers of behavior.

(Bohner, 2011) As detailed in Chapter Two, the elaboration likelihood model as well as the heuristic model of persuasion present attitude as a construct that is developed through cognitive and or peripheral responses to a stimuli (Cacioppo & Petty, 1986; Chaiken, 1987). The way a message is framed can automatically evoke biases while creating selective cue interest. The weight of the message itself can lose significance and a higher level of influence may come from cues such as source attractiveness or expertise (Todorov, Chaiken, & Henderson, 2002).

In the event of a successful inoculation treatment, analysis of the leading motivating factor shaping attitude aids in building a deeper understanding toward appropriate message framing (Brinol et al., 2006; Mayer & Tormala, 2010). This study seeks to offer an analysis between cognitive, emotional and behavioral response motives and their respective influence of inoculation treatment over time. Such evidence may help in delivering appropriate framing for future messages of a similar category.

Hypothesis 3 (H3): Attitudes will be driven primarily by emotional responses.

3.4 Secondary Hypotheses: Moderators

3.4.1 Gender

A commonly held notion is that women are more emotionally driven than men. This claim is confirmed in previous research (Mayer & Tormala, 2010) however, the causes of such effects should also be noted. Societies have attributed certain characteristics to genders, and from a young age, we are exposed to many such behavioral pressures, influencing our attitudes. Gender is identified as a likely moderator in this research due to the nurturing of favorable social roles as discussed by Cacioppo and Petty (1986).

For instance, from a young age, boys are pressured to like cool colors such as blue, while girls are often overly exposed to warm colors. Women are socialized to be more agreeable and passive, while men are groomed to be more stubborn and aggressive (Cacioppo & Petty, 1986). Driven by self-esteem and ego, people conform to the social identities they most favor and in doing so, they will adopt the attitudes attributed to the group as a means to maintaining a positive social standing (Langner et al., 2013).

Such norms are embedded in society and although even gender roles can change over time, based on the elaboration likelihood model by Cacioppo and Petty (1986) gender roles can indeed influence our attitudes, especially at a younger age when most attitudes are first formed. This research allows for a brief analysis exploring the contributing factors in guiding loyalty, with a comparison between men and women.

Hypothesis 4 (H4): Women are more driven by emotional cues than men.

3.4.2 Age

Holding prior knowledge toward a stimulus allows faster access to a corresponding attitude. Furthermore, the higher level of knowledge someone has toward a phenomenon, the more likely they are to have the capability to counter argue messages attacking their held beliefs (Cacioppo & Petty, 1986). Older persons are likely to have more prior knowledge of established product categories simply due to their age and increase the likelihood of repeat exposure. Because stored knowledge tends to be bias, an opinion for or against an argument will likely be pre-established (Cacioppo & Petty, 1986). A study conducted by Karani and Fraccastoro (2010) details how elderly consumers are not only more likely to repurchase offerings from a brand they show loyalty toward, but they also actively resist changing to a different brand.

Hypothesis 5 (H5): The older age group will be less affected by both the strong and the weak counter-arguments in contrast to the younger group.

3.4.3 Frequency

Experience itself is not necessarily tied to age alone, but rather time. The frequency one is exposed to a stimulus, or the amount of time a subject has held a belief acts as a catalyst for the strength of a preexisting attitude (Cacioppo & Petty, 1986). That is to say, if an attitude has been held for a long period of time, until a new attitude takes over in the implicit memory, the pre-existing attitude will determine behavior, especially should the subject become distracted and not able to critique circumstances (Rydell & McConnell, 2006). Previous studies have also shown that should relevance be increased, effects are more likely to be negative when the message is counter attitudinal. This stands true when under marketing conditions a frequently used product or brand is the subject of scrutiny (Gnepa, 2012). In this study, the difference

in message strength and the effects of inoculation treatment over time are evaluated on smokers of varied frequency. The aim is to establish whether a strong or weak inoculation treatment messages is more compelling over a period of time for high and or low frequency smokers.

Hypothesis 6 (H6): Subjects in the low smoking frequency group will be more affected by weak counter-arguments over time.

3.5 Chapter Summary

Chapter Three has provided a conceptual framework of inoculation treatment argument strength and the effect of inoculation treatment with varied message strengths over time. Several hypotheses have been presented in order to determine the aspect of each given construct within the framework, guiding assessment of various factor relationships. Chapter Four will present testing of the model and hypotheses discussed in this chapter.

Chapter Four: Methodology

The aim of this research is to apply inoculation treatment in a marketing context as conceptualized by Bither et al. (1971), and further explore the outcome of strong versus weak counter-arguments and the effect of the argument strength when measured after a period of two weeks. In this chapter the methodology employed in testing of the hypotheses presented in chapter three is rationalized: The chosen methodology allows for thorough and appropriate examination of data collected through the survey instrument, with the goal of finding the effects of strong versus weak counter-arguments in a marketing context using inoculation theory as discussed in Chapter Two. Chapter Four addresses the measurements used for operationalization of the variables, the construction and pre-testing of the survey instrument, data validity, data collection method, sample overview and statistical analysis.

This research consolidates a theoretical framework which is used to present the differences in success rates over time for marketing campaigns employing inoculation treatments with a strong counter-argument versus a weak counter-argument. The success rate of each treatment is presented as a measure of loyalty toward an original brand in contrast to loyalty toward a new competing brand attacking the established brand. A quantitative research approach is applied as it allows for use of a large sample size and statistical analysis (Elliott et al., 2004).

This analysis shows to what extent loyalty for the original brand presented in the experiment is affected by strong arguments, versus weak arguments, and how attitude building constructs are evoked in the process. Statistical analysis allows for this research to explore the target variable, loyalty, and its relationship to various

moderators tested. The analysis is used to illustrate the respective level of importance of the said moderators in attitude maintenance, after applying inoculation treatment to groups exposed to either weak or strong arguments. Statistical means testing provides indication of the existence, or lack of linear relationships between the levels of loyalty influenced by strong or weak inoculation treatment arguments as well as the effects of attitude formation factors: behavior, emotion and cognition as proposed in previous research as key attitude forming factors (Cacioppo & Petty, 1986).

4.1 Measurement of Variables

The measures that are applied in assessing the primary data gathered in this study have all been validated by other researches through previous testing. These measures are of established standards for statistical research such as those found in this research. The measurement methods used are factual and extensively presented in preceding literature (Field, 2013; Tabachnick & Fidell, 2014). Nominal measures are used in order to identify subject groups, while multi item seven-point Likert scales are used for other measures. These scales are anchored as one = Strongly Disagree to seven = Strongly Agree. All measures with the purpose of collecting data on attitude that used in the questionnaire applied in this study are presented in a marketing context.

4.1.1 Loyalty (Target Variable)

As detailed in Chapter Two, Cacioppo and Petty (1986) define attitude as the general evaluation a person holds in regard to themselves, other people, objects and or issues. Elliott et al. (2004) defines brand loyalty as: 'A customer's favorable attitude toward a specific brand' (p213). Under this definition of brand loyalty, customers will be more

likely to consistently purchase offerings from the given brand they are loyal to. When a customer develops a loyal attitude toward a brand, they will likely concentrate their purchases, lower selling costs, become more willing to pay premium prices and provide positive referrals (Walker, Gountas, Mavondo, & Mullins, 2010). In such sense, loyalty can be behavioral, attitudinal or both. Jensen and Hansen (2006), however, illustrate the necessity of attitude as an absolute requirement for true loyalty to occur, as a lack of matching attitude to loyal behavior may simply be spurious. The processes that lead to brand loyalty formation are explained by established attitude formation theories as discussed in Chapter Two. Kim et al. (2008) highlight the fundamental characteristic, attitude strength, acting as a mediator for cognitive and affective conviction allowing loyalty to manifest.

In this paper 'loyalty' is referred to as the perimeter for reporting the test subjects measured likelihood for staying with the original brand. This is based on emotional, cognitive and behavioral responses leading to measurable resistance toward the persuasive argument given by the new competing brand. This study draws upon attitude formation theory presented in the Elaboration Likelihood Model by Cacioppo and Petty (1986) to develop measurement constructs for 'loyalty'. As such, cognitive, emotional and behavioral components are used in the testing process to develop the target variable 'Loyalty'.

4.1.2 Treatment Groups

This research aims to assess the differences between inoculation treatments and counter-argument strengths. As such, the experiment conducted requires three separate treatment groups. Group one is not exposed to any inoculation treatment, and acts as the control group. Group Two is exposed to a strong counter-argument,

while Group Three is presented with a weak counter-argument. An even number of participants are randomly assigned to each of the three groups; however, due to the participant dropout rate in the second time sitting, scenario groups one and two each hold 38.2% of participants, while Group Three holds only 23.5% of total participants.

4.1.3 Moderators:

Previous attitude, resistance to attitude change and inoculation theories such as those discussed in Chapter Two, have led to the identification of several potential moderators suitable for testing under the conditions of a study such as this. The passage of time, in the case of the experiment conducted in this research, 14 days, is the main moderator of interest. It has been confirmed that inoculation treatment does indeed wear over time (Ivanov et al., 2009), yet the decay rate needs further exploration, as does the effect of an increased time measure, as previous research has conducted testing over relatively very short periods of time. Furthermore the effect of time on inoculation treatments using strong or weak counter-arguments seeks further understanding.

Gender could also prove to be a significant moderator, where gender roles are noted to affect attitude formation. While females are said to identify with being more emotionally driven, men tend to show stronger responses to cognitively driven stimuli (Mayer & Tormala, 2010). Age is also selected as yet another likely moderator as age is often an indicator of prior knowledge, repetition of exposure to a stimuli and a factor in the ease of accessibility of an attitude (Cacioppo & Petty, 1986). Elderly consumers have also previously been shown to display higher brand loyalty and a stronger resistance to brand switching (Karani & Fraccastoro, 2010). Lastly, the level of cigarette

consumption is identified as a probable moderator. This is based on Cacioppo and Petty (1986) presenting evidence showing an increase in relevance poses a greater chance for a message to be rejected as people are pre-determined to hold their beliefs.

4.2 Survey Tool

In order to conduct the survey experiment, a self-completion questionnaire is administered through a web based survey instrument, using the professional panel of Cint, an online research agency. Employing the services of Cint allows for a minimization of researcher bias and guarantees the maintenance of anonymity for the test subjects, further protecting their privacy and increasing confidence in producing truthful answers without fear of ridicule (Bryman, 2001).

The scales adopted from literature are all pre-validated and feature high reliability scores. As a means of limiting common method variance, all measures also feature the original Likert scale anchors rather than, strictly, consistent scale endpoints and formats (Podsakoff, MacKenzie, Jeong-Yeon, & Podsakoff, 2003; Podsakoff & Organ, 1986). Scholars suggest that this method can avoid influencing responses (Galan, Gonzalez-Benito, & Zuniga-Vincente, 2007; Tourangeau, Rasinski, & D'Andrade, 1991). Demographic screening questions necessary for the purpose of this research related to the act as smoking as well as the frequency of smoking were included alongside basic demographic questions including gender, age and level of education.

Survey respondents were first advised of the nature of the experiment through the Cint panel service. The option to opt in was then given to those that fit the demographic requirements. All survey respondents were first prompted with the

survey information sheet, where an invitation to take part in the experiment is presented with the nature of the experiment and a general overview of the experiment also explained (McDaniel & Gates, 2010). All respondents maintained their anonymity as identifier information was not required in this research. In such case, there then came no need for an explicit consent form. The questionnaire used in this research is presented in *Appendix Three*.

4.2 Survey Instrument Face Validity

The measures used in this study are commonly found in marketing literature and are of general usage, which consumers can understand. However, to ensure the questionnaire can be well understood, a face validity test was undertaken in order to refine the components of the survey to best fit the marketing context consumers can expect and are likely to experience in everyday environments. The grammatical structure of all components found in the survey along with reading comprehension were checked by several independent experts. The necessary adjustments to the initial presentation were made accordingly without changing the original meanings and intent.

4.3 Preliminary Survey Question Testing

A preliminary survey was conducted in order to determine if the levels of strength given to the arguments presented in the experiment scenarios were indeed reliable. A total of 30 undergraduate students from AUT University in Auckland, New Zealand, were asked six questions as to what levels of strength they perceived either of the given scenarios to poses. Three of the questions targeted the perception of the strong scenario, and another three questions were targeting the weak scenario. Eight of the

respondent surveys were dismissed due to being identified as consisting of meaningless data due to reasons discussed in section 4.4.4.

In order to determine internal consistency reliability, clean data from the remaining 22 surveys was scrutinized through performing a Cronbach's Alpha test. This resulted in a figure of .868. According to the item-total statistics run through SPSS (Ver 22), had reverse scales been removed, the new Cronbach's Alpha would have become .897, improving reliability (Weems, 2007). However, reverse scaling has been deemed as a suitable method in decreasing the likelihood of random responses (Weems, 2007). In order to generalize the findings of the preliminary question testing, a one-sample t-test, which compares the variance between groups to the variance within groups was conducted (Field, 2013). All factors proved to be highly significant with a value of $p < .001$. These tests verify that indeed the scenarios used in the experiment were respectively perceived as strong or weak and matched the strength expected. More information on this analysis is given in section 4.4.4 while the effect of reverse scaling on Cronbach's Alpha is discussed in section 4.5.1.

4.4 Sample selection and collection method

In this section the sample size requirements as well as respondent characteristics based on theoretical necessities and statistical validity are discussed.

4.4.1 Sample Size and Retest Time

Sample size was influenced by results from prior studies as well as the pilot survey, secondary data and experimenters' judgment (McDaniel & Gates, 2010). An initial sample size of 404 respondents who met the requirements of the qualifier questions was used for this research. This figure was decided upon with influence from previous

longitudinal experiments testing attitude and inoculation treatment. Pfau et al. (2006) used a sample size of 452 participants with a retention rate of 77.1%, while Ivanov et al. (2009) had a total sample size of 433 subjects. With the experiment being of longitudinal nature and the same respondents being required to participate in a second testing, a dropout rate of up to 50% was expected. The total number of participants factoring in the large potential dropout rate is still ideal. According to Field (2013), central limit theorem tells us that when a sample size is over 30, there will be a good chance of a normal distribution. The number of total participants who met all criteria for the main experiment, answered all questions and sat both experiments came to a total of 136 people.

Pfau et al. (2006) criticizes previous inoculation based research testing the effects of time on the inoculation treatment for being too short. With researchers often allowing no more than seven days in conducting retesting for longitudinal effects, although it is documented that inoculation treatment decays over time, the speed and amount of decay is lowest in contrast to other competing attitude maintenance approaches such as supportive therapy. (Ivanov et al., 2009) more recent inoculation treatment literature calls for the need for further research to hold longer testing periods. This research is inspired by the calls for longer time period testing, with a two week delay being applied between the initial testing and re-testing.

4.4.2 Respondent Screening

To collect data needed for testing the hypotheses presented in this study, a survey was implemented. The survey instrument was constructed on Qualtrix online software, with a distribution to 404 smokers directed to the survey through the online research panel service provided by Cint. The respondents employed in this research are all self-identified smokers from North America. With a population of over 500 million, 18% of which are smokers, ("cancer.org," 2015) the North American region allows for straightforward, convenient access to a sample subject group, representative of the population of interest. Smokers were used in this study due to their well-documented unique needs for specialized dental hygiene products. A realistic scenario was able to be presented, where subjects would be more easily engaged with the topic due to their real-world use of such products, (Kim et al., 2008) fitting the purpose of this research.

The age range of the subjects in this study is between 18 and 55 years, with a similar spread of men and women in each condition. Different levels of education are also represented in this study. Previous studies most often only used student subjects (Karani & Fraccastoro, 2010) (Cacioppo & Petty, 1986). Due to the legal age restrictions of smoking, as well as moral and ethical reasoning, persons under the age of 18 and over the age of 55 were omitted from this study. The diverse age range that was used is still reasonably representative of the general population, and likely majority of smokers' toothpaste users. The level of education amongst subjects could also play a role in the effects of inoculation treatments. This is due to the different attitude formation methods, and the various levels of analysis with which an argument may be undertaken (Cacioppo & Petty, 1986).

4.4.3 Respondent Recruitment

A body of current research demonstrates that online, respondent-administered 'Internet survey' research equates to the same level of accuracy or higher when compared to other offline survey methods (de Leeuw, 2012) (Selm & Jankowski, 2006) (Landoy & Repanovici, 2009). Undeniable advantages of online survey methods include the removal of pressure from interviewers or mailing responsibilities, time saved by both subjects and researches, reduction of costs, and ease in reaching significant population category numbers (Selm & Jankowski, 2006).

Online surveys can also increase the credibility of the results as researchers are able to see time spent completing the given survey, eliminate multiple repeats, incomplete or unreadable surveys and reduce the level of complexity perceived by the subject (de Leeuw, 2012). Due to the specific consumer category of this research and the potentially sensitive subject of cigarette consumption, the online survey method was especially appealing as it grants the benefit of subject anonymity while allowing the studies longitudinal retesting of the same subjects. The reliability of answers being truthful was also increased as explained by de Leeuw (2012) 'Respondents who answer sensitive questions alone and in all privacy are more open and tend to yield less to socially desirable answers' (p75).

The most notable downfall of conducting surveys online is the necessity of Internet access (Landoy & Repanovici, 2009). This most often causes an exclusion of older and underprivileged persons. (de Leeuw, 2012). Through the testing of this study being set in the North American region, the under-representation of the less privileged is narrowed, as the cost and availability of the Internet is within the means of a wider

sector of the population in contrast to other countries. According to PEW (2014) 87% of American adults have Internet access, with an even spread for all genders, ethnicities, education and income levels and age groups. This excludes only those over 65 years of age, who are not included in this research.

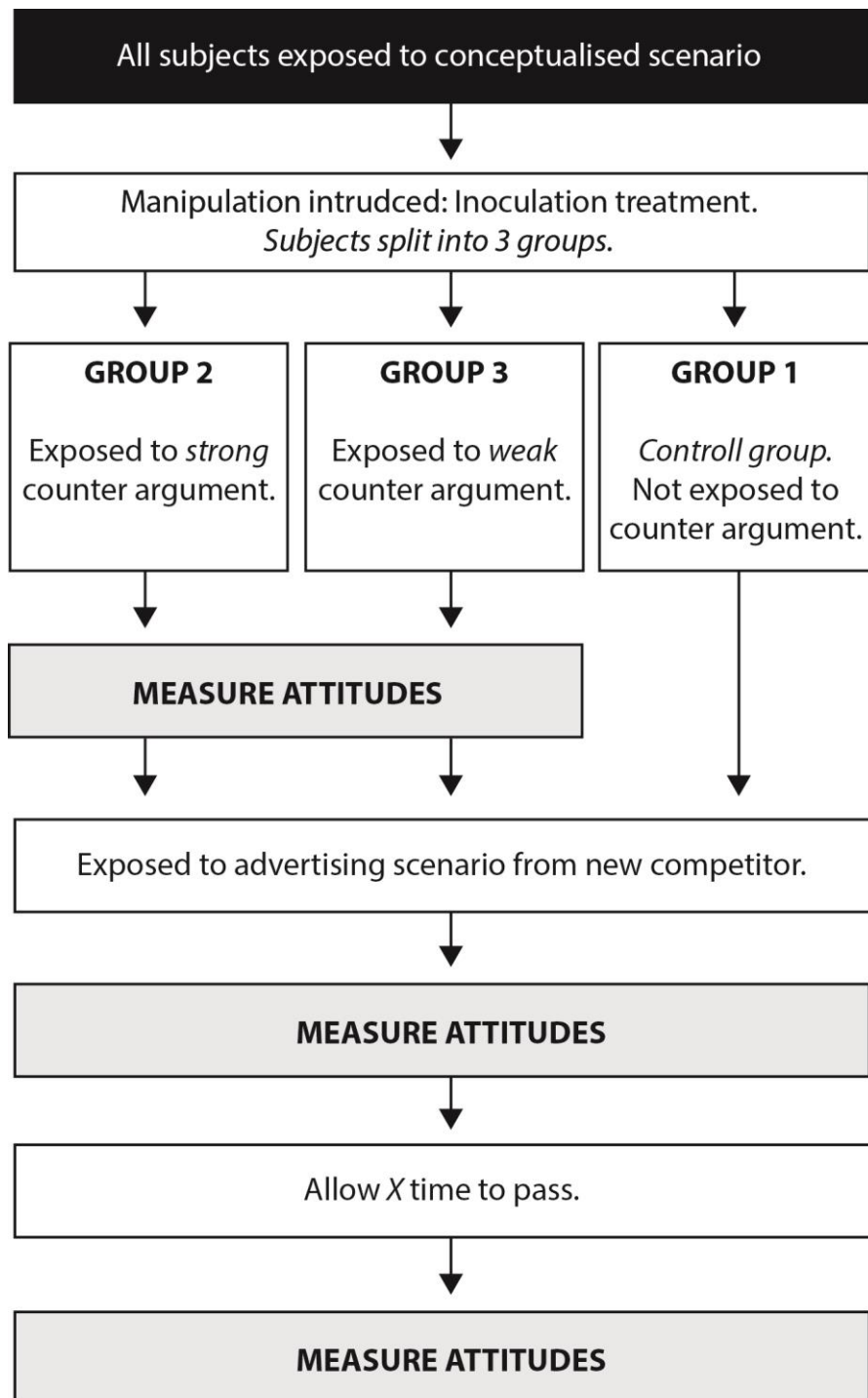
The chosen survey instrument, Cint - Qualtrix, is a web-based self-completed survey. Using a professional panel service (Cint) to direct respondent panel members to our Qualtrix web-based survey. This choice of a self-complete survey questionnaire further serves to minimize researcher bias and provide a means for survey respondents to answer survey questions in confidence without the fear of reciprocity (Bryman, 2001)

Cint is certified to ISO 20252 by SIRQ. This certification includes an active panel list to data protection system as well relevant security systems, protecting all clients ("Cint," 2015). Cint uses GEOIP as a measure to verify that panel lists are in the country they claim to be in while CAPTCHA codes are used to ensure only humans will be filling in the forms. Temporary Cookies are used in the validation process of surveys. Cint uses DE-DUPTING Technology, tagging each respondent with an anonymous id ("Cint," 2015). Through this anonymous ID, the system is able to identify when a panel list has answered a survey, as well as allowing for participating in multiple surveys over time.

Using Cint panel services allows for prompting of the longitudinal study without the need for the researches to collect personal details or any information which can be used to identify the participants. Cint uses DE-DUPTING Technology, tagging each respondent with an anonymous id. ("Cint," 2015). Through this anonymous ID, the system is able to identify when a panel list has answered a survey, as well as allowing for participating in multiple surveys over time.

The Cint professional panel service, through the use of its anonymous targeting of previous respondents applies a respondent ID to each respective response and thus does not employ the use of any personally identifiable information (such as name, region, IP address, etc.), rather, a unique indexing of respondent data that allows for comparative analysis at a future date. The anonymity of respondent information is of paramount importance so as to ensure privacy to participants.

Figure 4.1: Experiment Procedure



4.4.4 Procedure

Through using the Cint panel service, we were able to place certain qualifier criteria for participants of this experiment. Firstly, all subjects had to be over 18 years of age due to the experiment testing the attitude change in smokers and tobacco being an r18 product. An equal split of males and females was also applied and only persons who identified as smoking $\frac{1}{2}$ a pack of cigarettes or more per day qualified to take part.

Figure 4.1 presents the process of the experiment. Subjects were split into three groups. Group One being the control group, Group Two the strong counter-argument group and Group Three, the weak counter-argument group. All groups were exposed to the following scenario:

As a smoker consciously looking after your dental hygiene, consider that for several years, you have been using a toothpaste brand for especially for smokers named “Crown”. This specially formulated toothpaste aids you in countering the negative discoloring effects on teeth caused by smoking. Throughout your use of the Crown brand, you have not experienced any side effects nor any problems. The whitening treatment it promises has been generally effective. With frequent use of the Crown toothpaste, you are able to keep the attractive white coloring of your teeth.

While doing your shopping and seeking out your regular smoker’s toothpaste, you notice a new competing brand ‘Royal,’ which is selling for the same price as your regular brand. You recall having seen advertising from Royal, which claimed to act much faster and stronger than any existing brand. Thanks to its speedy results, the new Royal brand claims that you would even be able to reduce the treatment frequency and amount of time spent brushing.

Being the control group, Group One was not given an inoculation treatment. Group Two, the strong argument group is given the following strong counter-argument; As you are now considering the decision of which brand to purchase, you remember seeing advertising from your regular smoker's toothpaste, Crown. Their advertisement claims that new competitors (such as Royal), only achieve their quick results through the use of a chemical that is proven to cause tooth decay, thus achieving only temporary cosmetic effects. According to Crown, the Royal smoker's toothpaste product fails to aid in the long term improvement of your oral hygiene, and puts your teeth at risk.

Meanwhile, Group Three is exposed to a weak counter-argument as follows: As you are now considering the decision of which brand to purchase, you remember seeing advertising from your regular smoker's toothpaste, Crown. The advertisement highlights the fact that they are very experienced at making smokers' toothpaste, unlike newer market entries. Crown implores you to stick with the brand you know and trust. The attitudes of participants were tested. After a period of 14 days, a second testing was conducted where participants were again exposed to the initial scenario as a reminder, however this time, no counter-arguments were offered. Attitudes of all subjects that had participated in both exposures were then measured and used for the purpose of this study.

4.4.5 Post Hoc Identification of Meaningless Data

In order to safeguard the integrity of the conclusions presented in this research, a post hoc analysis of the raw data is executed. This is done so in an attempt to present unbiased and un-manipulated findings (Leiner, 2013). Data is referred to being in raw form when it is in its initial state as drawn directly from respondents (Meade & Craig, 2012). In the post hoc analysis processes, what is deemed as meaningless data is excluded from the final data set, leaving us with a 'clean' data set. Leiner (2013) reflects on a key property of what we refer to as meaningless data as to when a subject is 'spending limited or no cognitive effort on answering a question.' (p4) Meade and Craig (2012) add the notion of 'data provided directly by respondents that does not accurately reflect respondents true levels of the constructs purportedly being measured' (p437).

Various existing research along with rational reasoning provide several methods for identification of meaningless data in this study. Beach (1988) addresses the necessity of tracking the time taken for completion of a survey, especially in online conditions, where the survey is taken in privacy with no interviewer present to assess the integrity of the response and eliminate the likelihood of random responding. By conducting the surveys used for the purpose of this research through Cint panel data, the Qualtrics programming used allows for monitoring individual survey response times. Survey length is also presented as a problematic area, where when a survey is too long or repetitive the likelihood of random responses increases (Meade & Craig, 2012).

The study conducted in this thesis lowers the danger of this by keeping the survey short, presenting few questions and delegating separate grouping. Reverse scaling is also used in this survey in an attempt to maintain integrity. Weems (2007) suggests

reverse scaling as a method that may be used to motivate participants to process items more carefully, preventing negative respondent behaviors. Although all respondents in this study remain anonymous, the Qualtrics programming allocated respondent ID numbers to each test subject as recommended by Meade and Craig (2012). These numbers are not only used to match repeat respondents to the second testing, but also to help identify meaningless data by allowing a cross comparison of testing behavior, such as time spent in both instances of testing.

Due to the longitudinal nature of the research, only respondents who answered both experiment instances in full were included in this study. The initial amount of 404 respondents was reduced to 145 when considering the necessary longitudinal repeat test answers only. Respondents who failed to complete the surveys to full were also excluded, as were several additional cases that were deemed as meaningless data by a process of elimination based on the previously mentioned methods. A total of 136 completed survey questionnaires from both test times were deemed suitable for the purpose of statistical analyses of this study.

4.5 Statistical Analyses

The following section provides a brief detailing of the statistical analysis employed in the testing of the survey instrument.

4.5.1 Validity and Reliability Tests

Validity tests are used in order to determine whether an instrument used is actually capable of producing accurate measures of what is intended (Field, 2013). Despite the testing methods applied in this research having been successfully used in previous research, an informal face validity test was conducted to ensure the authenticity of the study. Scale validity was identified through conducting factor analysis in SPSS (Field & Hole, 2003). Through this process, correlations between known measures of the constructs of target variable billed as 'loyalty' are assessed.

Testing for reliability shows whether the same instrument can be used and interpreted consistently throughout different situations (Field & Hole, 2003). Re-testing with the same questions under the same conditions would show reliability, however, this is not at all practical as subjects would manifest practice effects, where remembering the previous answers given will skew results. Such a method is also impractical when measuring something that is expected to change (Field & Hole, 2003). In order to test the reliability of scaling in this study, the more acceptable statistical approach of Cronbach's alpha coefficient is applied for the purpose of identifying reliability. Gaur and Gaur (2009) give the value of 0.70 as an acceptable Cronbach's alpha value, with anything lower indicating an unreliable scale.

As mentioned previously, the survey constructed for this research used reverse coded questions in order to decrease the likelihood of meaningless data. This process can also have adverse effects, especially lowering reliability. Participants may misread phrasing of reverse coded questions, and also have difficulty processing their answer (Weems, 2007). Unintentional entries will contribute to lowering reliability thus lowering the value of Cronbach's alpha. As with all research using reverse coded

questions, it is up to the researchers to decide whether reverse coded items are justifiable. This research has a total of 18 raw items.

When a lot of items are scaled, if calculated together, the higher, more reliable scales can skew the results, indicating an acceptable level of reliability, when indeed the poor scales are only masked by the stronger items (Cortina, 1993; Field, 2013). To avoid a misrepresented Cronbach's Alpha result, Cortina (1993) advises that if multiple factors exist, the formula should be applied separately to items relating to different factors. In the case of this research, with reverse coded items included, the Cronbach's alpha value is .819 for the first testing instance and .799 for the second testing instance. Being over 0.70, reliability is achieved thus giving merit to the decision of using reverse scales.

4.6 Chapter Summary

This chapter has detailed the processes employed in selecting and validating the various measures of this study. Face validity, preliminary survey question testing, sample selection and sample collection have been rationalized. The experiment procedure and post hoc identification of meaningless data has also been presented. This chapter has thus defined the various methodological and analytical processes used in the survey instrument testing process.

Chapter Five: Analyses and Results

Chapter Five outlines the analysis and results in this study. An overview of sample characteristics is first given, followed by the reliability and validity assessment of the factors used in this research. Post Hoc analysis is then discussed. This is then followed by the presentation of the hypotheses testing methods, results and the moderating effects of strength varying inoculation treatments over time, comparing strong counter-argument treatment, to weak counter-argument treatment and the effects of these over time.

5.1 Sample Characteristics

A total of 452 subjects were first included in the experiment. However, due to the longitudinal nature of the experiment, and a high number of participants failing to take part in the second testing, in addition to reasons mentioned in Chapter Four, only 136 subjects' survey responses were deemed usable. Participants of this study all reside in North America, and all of the respondents are self-identified smokers, consuming a minimum of 20 cigarettes per week. Because the study explores the habits of cigarette smokers, persons under 18 years of age were not permitted to participate. The age range in this study is 18 to 55. An even gender split is also applied with 68 males and 68 females participating. More detailed sample characteristics are outlined in *Table 5.1* through to *Table 5.6*.

5.1.1 Subject Group Distribution

The purpose of this research is to examine the effectiveness of strong versus weak counter-arguments used in an inoculation treatment in a market scenario setting, over a period of two weeks. The respondents were assigned to three unique groups for the duration of the experiment, and also re assigned to the same group in the second testing. *Table 5.1* through to *Table 5.6* details the subject group distribution.

Education was not investigated further as there was an overwhelmingly uneven distribution with only 2.2% making up the lowest education bracket.

Table 5.1: Subject Grouping

Subject Group Distribution	Frequency	Percent
Scenario 1: Control	52	38.2%
Scenario 2: Strong counter-argument	52	38.2%
Scenario 3: Weak counter-argument	32	23.5%
Total	136	100.0%

5.1.2 Gender Distribution

Table: 5.2: Gender Distribution

Gender Distribution	Frequency	Percent
Male	68	50.0%
Female	68	50.0%
Total	136	100.0%

5.1.3 Age Distribution

Table: 5.3: Age Distribution

Age Distribution	Frequency	Percent
18-30	32	23.5%
31-42	51	37.5%
43-55	53	39.0%
Total	136	100.0%

Table 5.4: Age Distribution (Young vs Old)

Age Distribution (Young vs Old)	Frequency	Percent
Young (18-30)	32	23.5%
Old (43-55)	53	39.0%
Total	85	62.5%

5.1.5 Smoking Regularity

Table 5.5: Smoking Regularity

Smoking Regularity	Frequency	Percent
Light Smoker	24	17.6%
Average Smoker	87	64.0%
Heavy Smoker	25	18.4%
Total	136	100.0%

Table 5.6 Smoking Regularity (High vs Low)

Smoking Regularity (High vs Low)	Frequency	Percent
Light Smoker	24	17.6%
Heavy Smoker	25	18.4%
Total	49	36.0%

5.2 Reliability Analysis

The most common measure of scale reliability, Cronbach's Alpha (Churchill, 1979; Field, 2013; Field & Hole, 2003; Gaur & Gaur, 2009) is applied in order to measure the internal consistency within the scales of this research. Additionally, in order to identify any potentially unreliable items, item-to-total correlations (item total statistics) are also conducted. These procedures depict the surveys reliability of responses. The mean, standard deviation, item-total statistics and overall reliability statistics are calculated and illustrated in the sub sections of 5.3 of this chapter. In order to avoid a potential positive skewing of Cronbach's Alpha results, the formula is applied presenting Cronbach's alpha values of .819 for the first testing instance and .799 for the second testing instance.

All scales presented in this research, including reverse scale items, meet the minimum requirement of 0.70 showing good individual scale consistency as well as overall consistency (Field & Hole, 2003; Gaur & Gaur, 2009). In the case of this research, two factors are identified for both Time A and Time B. The second factor is a result of reverse-coded questions. The effects of reverse-coding are detailed in Chapter Four as guided by (Weems, 2007) while the structure matrices are presented for Time A and Time B in *Table 5.1*. Only factors found to have an eigenvalue higher than 1.0 are deemed significant (Field, 2013). A Kaiser-Meyer-Olkin measure of sampling adequacy is reported for the factors of the experiment from Time A and Time B. The KMO results proved to be over 0.5 (Time A KMO = .832, Time B KMO = .806) demonstrating factor analysis is indeed reliable. These results validate the existence of the conceptualized construct 'loyalty', demonstrating convergent and discriminant validity for all scales presented in this study.

5.3 Exploratory Factor Analysis

In order to assess the effects over time of inoculation treatments using strong or weak counter-arguments, the target variable ‘loyalty’ is constructed. To assess the validity of each measure, confirming its contribution to the construct of ‘loyalty’, exploratory factor analysis is conducted using IBM SPSS version 22. Factor analysis is run for both Time A and Time B including all items in order to test the link level as well as identifying any items that do not hold validity. In measuring the latent variable of loyalty, an oblique rotation, direct oblmin, is applied as this factor analysis method allows for factors to correlate (Field, 2013). Principal axis factoring is recommended by Field (2013) as it is one of the standard reliable methods of unearthing factors within a data set representing the collective subject population featured in the study. Factor loadings over .5 represent a positive correlation between items. The factor analysis of each variable is detailed in the following sections.

Table 5.1 Structure Matrix (Time A & Time B)

Structure Matrix (Time A)			Structure Matrix (Time B)		
Item	Factor		Item	Factor	
	1	2		1	2
C1.1_a	.872		C1.1_b	.867	
B1.7_a	.866		E1.6_b	.813	
B1.9_a	.804		E1.5_b	.809	
E1.5_a	.780		B1.7_b	.794	
E1.6_a	.765		B1.9_b	.693	
E1.4_aR		.925	E1.4_bR		.881
B1.8_aR		.908	B1.8_bR		.860
C1.3_aR		.870	C1.3_bR		.793
C1.2_aR		.580	C1.2_bR		.770

5.3.1 Scale Reliability

The following tables depict individual factors from both the first testing period “Time A” and the second testing period “Time B”. All of the items hold an adequate level of reliability manifested by a Cronbach’s Alpha score higher than 0.70. Each item in the given scale contributes to the overall value given to the designated time frame.

Table 5.3: Cronbach’s Alpha Totals (Time A)

Item	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Time A Overall (Loyalty)	.819	.815	9

Table 5.4: Cronbach’s Alpha Totals (Time B)

Item	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Time B Overall (Loyalty)	.799	.799	9

Table 5.5: Reliability Analysis Results for Scale Items Time A

Scale	Items	Mean	Std. Deviation	Cronbach's Alpha if item removed
Cognitive (Time A)	C1.1_a	4.69	1.836	.781
	C1.2_aR	2.86	1.482	.827
	C1.3_aR	3.79	1.854	.809
Emotional (Time A)	E1.4_aR	3.55	1.935	.800
	E1.5_a	4.71	1.699	.811
	E1.6_a	4.28	1.904	.793
Behavioral (Time A)	B1.7_a	4.82	1.722	.784
	B1.8_aR	3.65	1.949	.797
	B1.9_a	4.01	2.103	.798

Table 5.6: Reliability Analysis Results for Scale Items Time B

Scale	Items	Mean	Std. Deviation	Cronbach's Alpha if item removed
Cognitive (Time B)	C1.1_b	4.40	1.748	.763
	C1.2_bR	2.74	1.400	.780
	C1.3_bR	3.09	1.411	.805
Emotional (Time B)	E1.4_bR	3.01	1.542	.787
	E1.5_b	4.46	1.591	.778
	E1.6_b	3.96	1.871	.760
Behavioral (Time B)	B1.7_b	4.15	1.549	.757
	B1.8_bR	3.05	1.697	.790
	B1.9_b	3.85	1.949	.787

5.4 Descriptive Statistics (Post Hoc)

A paired samples t-test is required when there are two experimental conditions, with the same participants being included in both conditions. (Field, 2013) T-Tests do not require large sample sizes and allow for the necessary time period comparison. (Gaur & Gaur, 2009) This research tests the effects of inoculation treatment over a period of two time intervals, 14 days apart. The same sample group is used, and participants are presented with the same scenario in both exposure instances. The factors in this study - cognitive, emotional and behavioral responses are combined to form the target variable 'loyalty'. The mean scores of 'loyalty' from the two time periods are compared using paired sample t-tests in order to observe any differences. On average, participants from scenario one, Time A ($M = 3.611$, $SE = .1333$) the control group, did not show a great difference when compared to Time B ($M = 3.620$, $SE = .1257$).

The control group was not significantly different in loyalty showing, $p=.963$. Being the control group, the lack of significant difference between the test times shows that there were likely no major outside interferences that contributed toward skewing of results (Field & Hole, 2003). For scenario 2, the strong counter-argument group

showed a highly significant difference between testing instances, Time A ($M=4.532$, $SE=.1733$) and, Time B ($M=3.447$, $SE=.1302$), $p>.001$. Scenario three, the weak counter-argument group, presented no significant difference between the two timed testing periods, Time A ($M=3.938$, $SE=.1933$) and Time B ($M=3.962$, $SE=.2216$) where the significance value came to $p=.936$.

5.5 Hypotheses Testing

An analysis of variance was first conducted in order to illustrate the differences between the group means as well as the levels of significance or their lack of between groups. To achieve this a One-way Anova is reported as it allows for comparison between the means of more than two groups (Field, 2013). In order to produce a more specific analysis, a Tukey's HSD post hoc test is also conducted. The Tukey's test illustrates the level of significance between each group. The test is applied to both testing conditions, Time A, and Time B, through their respective main target variables Loyal A and Loyal B which are combinations of all of the items presented. A significance level less than .05 must be found in order to determine significance (Field, 2013). Finally a t-test is conducted for each relevant condition to determine the exact level of significance.

Hypothesis One (H1) predicts that there will initially be a higher significant positive relationship between the strong counter-argument and loyalty in contrast to the weak counter-argument and loyalty. This can be tested at the same time as Hypothesis Two (H2), which presumes that the weak counter-argument will have longer lasting effects in contrast to the strong counter-argument, and have a slower rate of decay. As the same subject groups are tested at different intervals and participants remain in their

original group, paired samples t-tests are conducted, testing the significance of loyalty for the control group, the strong counter-argument group, and the weak counter-argument group. The paired samples t-test shows whether or not there is a significant difference between the means of the two test sessions of each group (Gaur & Gaur, 2009).

Hypothesis Three (H3) proposes that attitudes influenced by weak arguments will be driven primarily by emotional responses. In order to test this hypothesis, the items are grouped accordingly into sets for each testing period, producing: Cognitive A, Cognitive B, Emotional A, Emotional B, Behavioral A and Behavioral B. Each item set is then run through One-Way Anova with descriptive analysis showcasing the means of each group, again also running post-hoc Tukey HSD tests. A t-test is then conducted to determine the level of significance between conditions (Field & Hole, 2003).

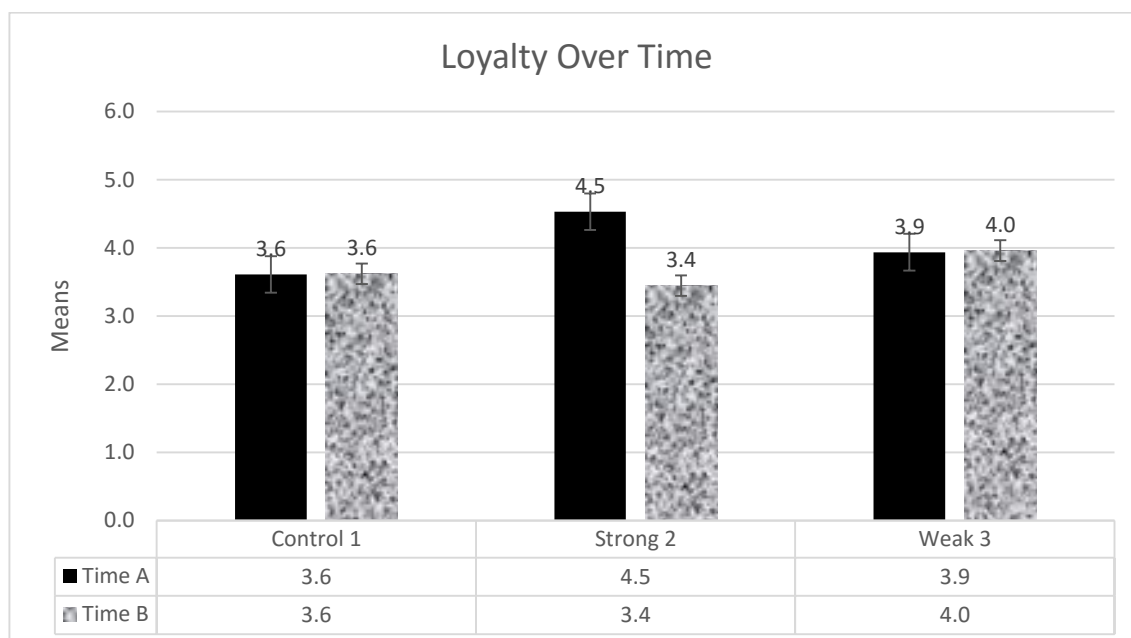
For all following hypotheses the same testing previously mentioned is conducted while selecting relevant data suitable for the purpose of each hypotheses. Hypothesis Four (H4) states that women will be more driven by emotional cues than men. In order to test this hypothesis, male and female subjects are split before re-testing, allowing for comparison between the 68 male participants and the 68 female participants.

Hypothesis Five (H5), which states that the older age group will be less affected by both the strong and the weak counter-arguments in contrast to the younger group, is tested by removing the 31-42 middle age group and applying the previously mentioned tests to the 18-30 group (23.5% of total subjects) and the 43-55 age group (39% of total subjects) and conducting comparisons between the loyalty variable means of the two time periods and between groups. Finally, Hypothesis Six (H6) is tested through

the same process, however only comparing the light smoker group (17.6% of participants) and the heavy smoker group (18.4% of participants).

5.6 Main Results

Figure 5.1: Loyalty Over Time

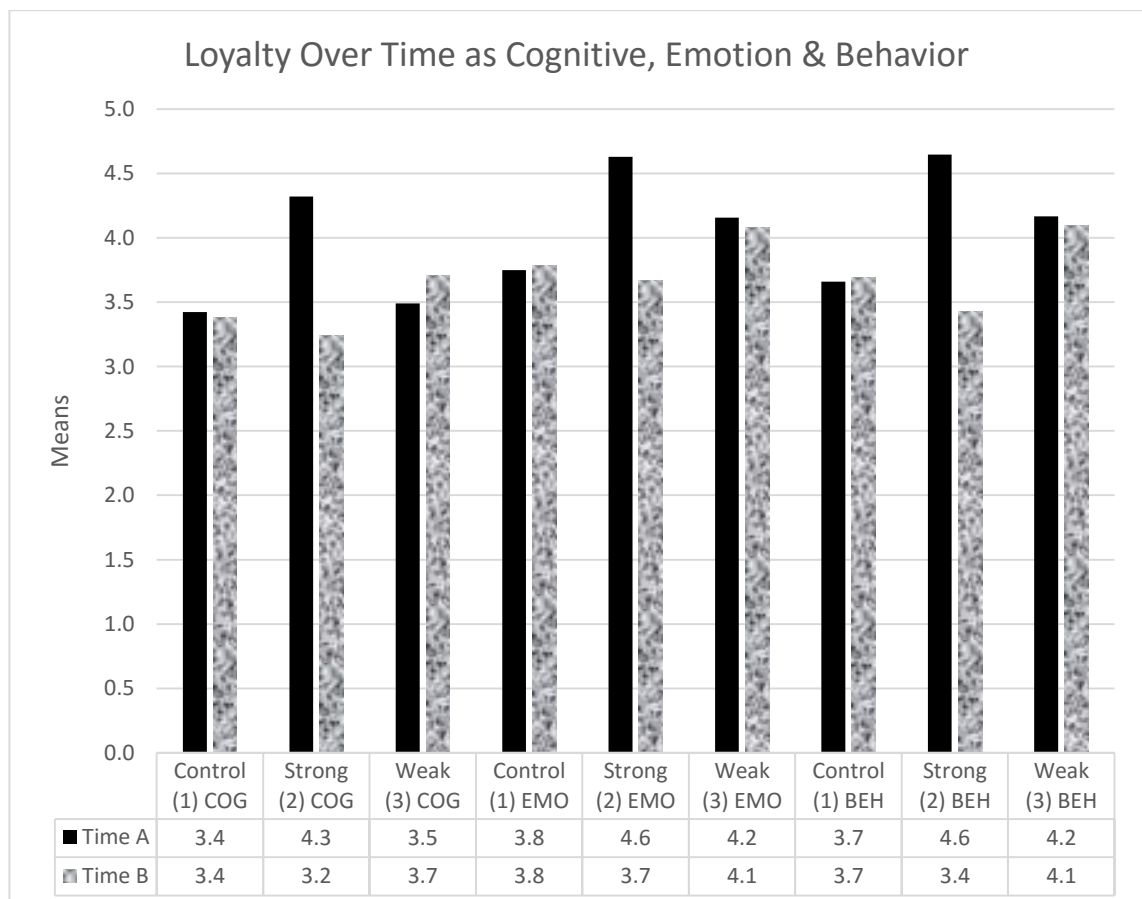


The chart in *Figure 5.1* shows the mean differences for each inoculation treatment group. Group One (control), Group Two (strong argument) and Group Three (weak argument), over the two testing instances with a 14 day time difference, Time A and Time B. The control group shows no statistical difference, and has maintained an average mean of 3.6 for both Time A and Time B. The strong counter-argument group has shown a strong initial reaction with a mean score of 4.5, this is 0.9 higher than the control group in the same period ($t=4.2$, $p<.001$) and is also significantly higher (i.e., more persuasive) than the weak argument at the same initial time ($t=2.2$, $p=.03$). However, the mean for the strong argument falls significantly from Time A to Time B ($t=4.7$, $p<.001$). Although the persuasiveness of the weak argument remains constant over the tested time period (and was lower than the strong argument in Time A) the

level of persuasiveness of the weak argument significantly exceeds that of the strong argument in Time B ($t=2.2, p=.035$). The evidence provides strong support for Hypothesis One as well as Hypothesis Two.

The 'loyalty' construct is a target variable conceptualized through the combination of the cognitive, emotional and behavioral factors. Because 'loyalty' itself is not a factor that could be directly measured, post hoc testing was necessary in order to compare the means of all of the combinations of the pairs of groups. For the purpose of post hoc analysis, Tukey's HSD testing is conducted. Tukey's HSD test, (honestly significant difference) is the most commonly used test for such purpose as it is most conservative (Gaur & Gaur, 2009).

Figure 5.2: Loyalty Over Time as Cognitive, Emotion and Behavior



The sub groups that form loyalty are individually tested in order to determine the level of significance for each category, allowing testing for Hypothesis Three (H3). The mean scores are illustrated in *Figure 5.2*. The findings indicate that all categories are significant drivers of attitude (cognitive ($t=2.5, p=.011$), emotion ($t=2.3, p=.019$), behavior ($t=2.9, p=.003$). However, Hypothesis Three is not supported, as behavior is found to be the primary driver of attitude ($t=2.9, p=.003$), not emotion ($t=2.3, p=.019$). This indicates that the inoculation treatment affected subjects best on a subliminal level.

5.7 Moderator Results

The first moderator hypothesis, H4, predicts that women are more driven by emotional cues than men. This did not prove to be significant thus Hypothesis Four (H4) is not supported.

Figure 5.3 plots the mean scores of younger smokers' loyalty over time while *Figure 5.4* shows older smokers' loyalty over time. No significant results were found for the older smoker groups. Although a difference of 0.7 between the mean scores of Time A and Time B is seen for the younger weak argument smoker group, and *Figure 5.3* shows a sharp increase over time, this result did not prove to be significant. This is probably due to the small number (only 6 subjects) representing this group.

Based on this restriction, Hypothesis Five (H5), the older age group will be less affected by both the strong and the weak counter-arguments in contrast to the younger group cannot not supported.

Figure 5.3: Younger Smokers Loyalty Over Time

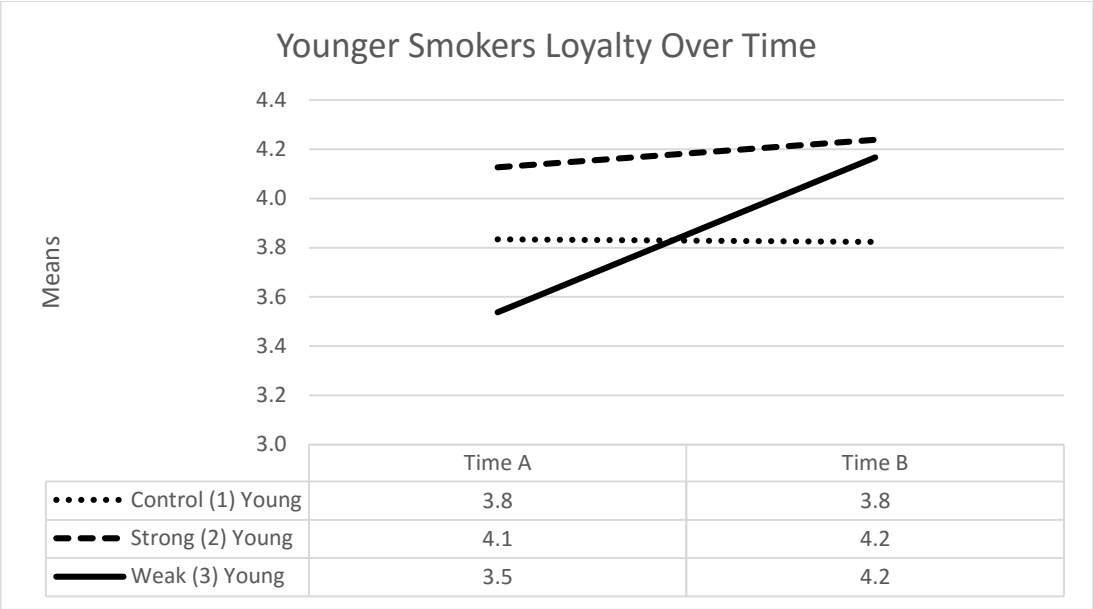


Figure 5.4: Older Smokers Loyalty Over Time

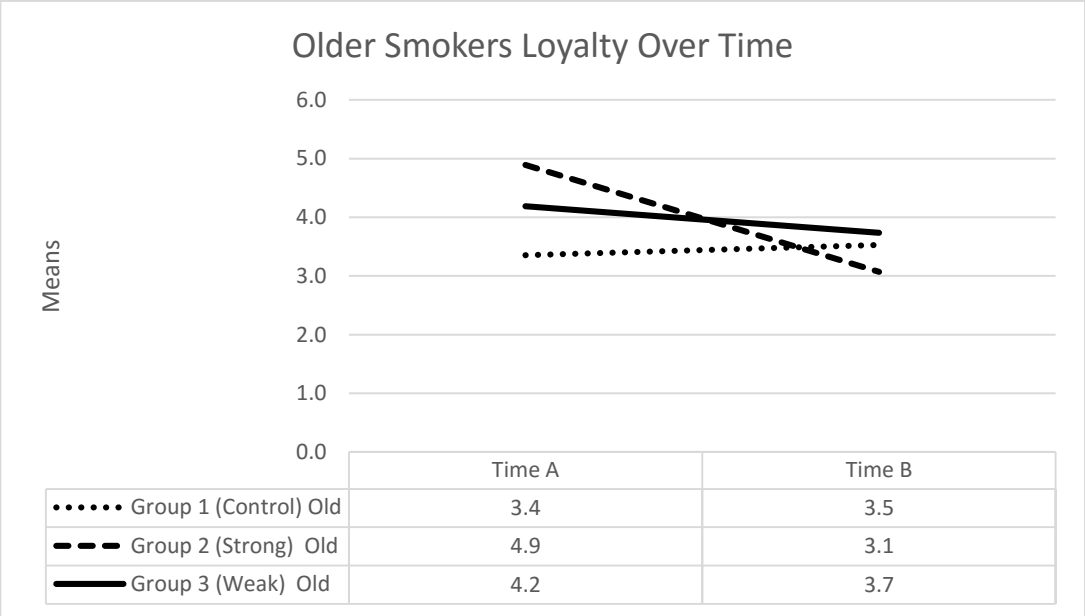
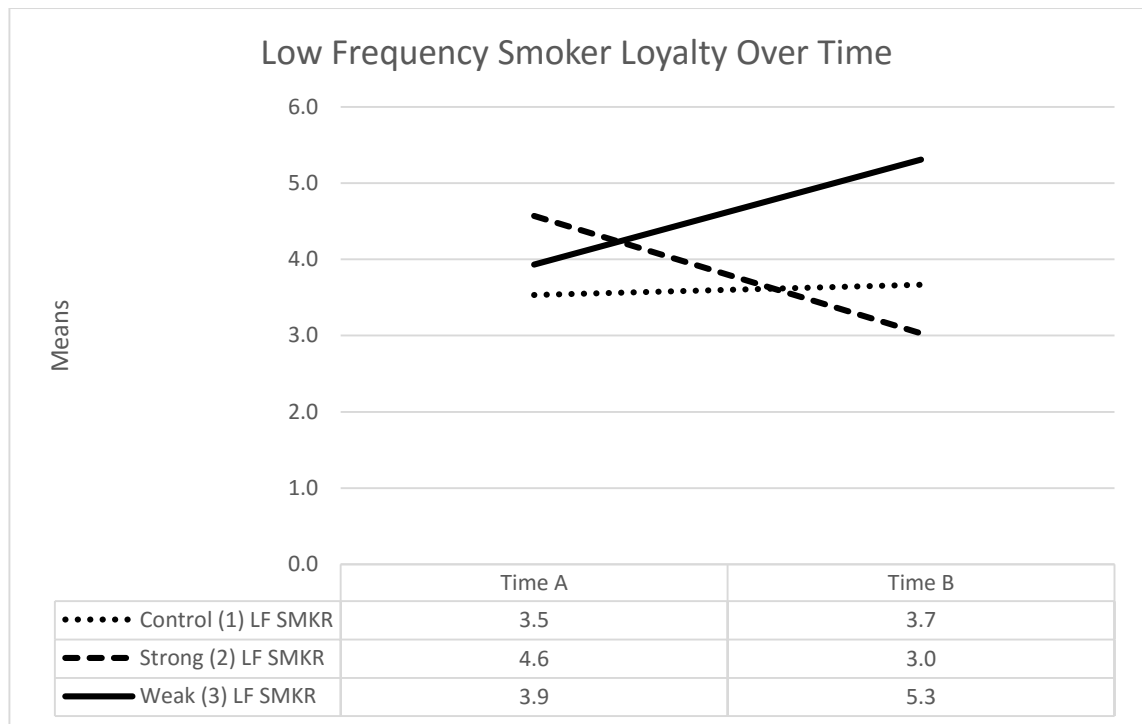


Figure 5.5: Low Frequency Smokers Loyalty Over Time



Subject cases were separated by smoking frequency in order to test Hypothesis Six which predicts subjects in the low smoking frequency group will be more affected by weak counter-arguments over time. As depicted in Table 5.17, although neither strong nor weak counter-argument treatments show any significant differences in Time A, the weak counter-argument sees a significant level of growth from Time A to Time B. ($t=4.0, p=.015$). The weak counter-argument is statistically significantly different to the control group at Time B ($t=2.6, p=.019$) as well as also being statistically significantly different to the strong argument at Time B. ($t=3.7, p=.003$). These findings are evidence providing support for Hypothesis Six.

5.8 Chapter Summary

Chapter Five has defined the data analysis procedures as well as presented the results of the data analysis necessary for testing of the hypotheses. The hypotheses results are summarized in *Table 5.13*. The results of this research demonstrate support for several hypotheses while also uncovering unexpected effects of inoculation treatment. A discussion of these findings and their implications is found in Chapter Six along with an assessment of limitations and possibilities for future research. A final conclusion for this study is then declared.

Table 5.7: Hypotheses and Results

Hypotheses & Secondary Hypotheses	Results
H1: There will initially be a higher significant positive relationship between the strong argument and loyalty in contrast to the weak counter-argument.	Supported
H2: The weak counter-argument will have longer lasting effects in contrast to the strong counter-argument, also showing a slower rate of decay.	Supported
H3: Attitudes will be driven primarily by emotional responses.	Not Supported
H4: Women are more driven by emotional cues than men.	Not Supported
H5: The older age group will be less effected by both the strong and the weak counter-arguments in contrast to the younger group.	Not Supported
H6: Subjects in the low smoking frequency group will be more affected by weak counter-arguments over time.	Supported

Chapter Six: Discussion and Conclusions

Based on a comprehensive review of the existing literature on attitude, inoculation and marketing theory as presented in Chapter Two, several hypotheses predicting various effects of inoculation treatment over time and under different conditions were developed. Empirical data was then collected for testing the hypotheses. The experiment process is depicted in *Figure 4.1* while Chapter Four is dedicated to detailing the application of reliability and validity testing. Chapter Five provides an in-depth analysis and results for the inoculation treatment experiment conducted. Chapter Six reviews major research findings, implications and limitations of this research. Chapter Six also provides suggestions for future research and confers a final conclusion.

6.1 Major Findings

Through quantitative experimentation, this study provides support for existing inoculation theory with respect to the effects of message strength and the attributes of inoculation treatment over time under marketing conditions. A strong inoculation treatment counter-argument is initially found to be more persuasive. As hypothesized however, although the strong argument was more effective at first, the strong counter-argument falls off significantly between the two test periods. A weak counter-argument which is not as effective in the initial testing (Time A) was found to achieve a significantly higher level of persuasion in contrast to the strong counter-argument by the second test sitting, with the time period difference of two weeks.

This initial success of the strong counter-argument, and the robustness of the weak counter-argument presented in this research support the work of Bither et al. (1971),

and Eisend (2006). This success shows that inoculation treatments are well suited for developing resistance to attitude change in a marketing environment, and allows for use of two-sided messages addressing both users and non-users, thus lowering advertising costs. The stability of the weak counter-argument over time in contrast to the great decline in effectiveness of the strong argument also support L. Tormala, Z. and Petty (2002), who declare that should someone resist an initially strong persuasive argument they will build certainty for the existing attitude. By using weak counter-arguments under marketing and advertising conditions, the likelihood of an unwanted attitude being strengthened through a subject's resistance to a strong argument can be avoided.

While all variables conceptualized in this research (Cognition, Emotion, Behavior) proved to be significant to building the loyalty construct, which was deemed as being a significant measure of favorable attitude (Cacioppo & Petty, 1986; Jensen & Hansen, 2006), the primary driver of loyalty in this research was behavior, not emotion as hypothesized. This finding indicates that the weak counter-argument was processed at a subconscious level with very little if any conscious resistance. Rydell and McConnell (2006) produce an experiment showing subliminally processed information directly effects implicit attitudes.

As demonstrated by the Elaboration Likelihood Model (*Figure 2.1*) (Cacioppo & Petty, 1986) and the Heuristic Model of Persuasion (Chaiken, 1987) weaker messages are more likely to be automatically processed through peripheral means. A strong argument requires more cognitive resources for processing and as shown in this research, a successful strong argument will only produce temporary, short lasting successful results. Furthermore, today's marketing environment can produce an excess

of information leaving most consumers distracted and unable to process strong messages (Cacioppo & Petty, 1986; Lemanski & Lee, 2012).

The weak counter-argument inoculation treatment produced in this research was not found to show a significant change between testing periods, demonstrating potentially permanent effects. This is contradictory to the findings of (Ivanov et al., 2009; McGuire & Papageorgis, 1961) who state that all inoculation treatments will decay over time. In the case of this research, the weak counter-argument rather proved to be stable over time. This finding supports the comments of Pfau et al. (2006) who critiques much other inoculation research for only allowing a narrow duration of time to pass, in cases mere hours, before testing the effect of inoculation treatment over time. Finally, it was hypothesized that lower frequency smokers would be more affected by weak counter-arguments over time. This original hypothesis was supported, additionally the low frequency smokers in the weak counter-argument inoculation treatment group also show a significantly positive increase over time in loyalty.

6.2 Implications

Much research has been dedicated to understanding attitudes. Although a great deal of rich literature is readily available, the topic of attitude is still one that requires more inquiry. This is especially true for theories presenting solutions for building resistance to attitude change such as attitude inoculation treatment. Previous literature calls for testing of the effect of inoculation treatment over longer periods of time (Eisend, 2006; Ivanov et al., 2009), further testing of attitude formation mechanisms, (Bohner, 2011; Pomerantz et al., 1995) and testing of inoculation treatment as applied to

different product categories (Bither et al., 1971). This research includes a contribution toward these areas.

Findings presented in this study hold important implications for academics concerned with attitude inoculation theory, as well as marketers looking to employ attitude resistance techniques in their field. While attitude inoculation theory is well documented as being the best treatment for the maintenance of attitudes (McGuire & Papageorgis, 1961; Pfau et al., 2006) this research demonstrates inoculation holds many unexplored properties, especially in regard to the effects of inoculation treatment over time. The findings presented indicate that inoculation treatments are indeed an appropriate tool for managing attitudes, even over longer periods of time. For business practitioners, correct application of attitude inoculation treatments can lead to a reduced marketing cost through simultaneously targeting users and non-users, while also leading to an increase of customer loyalty.

This study indicates the long-term success of an attitude resistance campaign is heavily contingent on the appropriate application of message strength. In New Zealand, most public service announcements, for instance road safety, are graphic in nature.

According to this study, strong arguments presented in the form of shock value for such campaigns will likely only hold short-term success in influencing people to drive safely. In contrast we may consider a particular PSA campaign for road safety from the 90's. The advert, sponsored by McDonalds, featured a catchy, upbeat jingle, which included the slogan 'make it click'. This constitutes a weaker argument, which cautions children and adults alike to put on their seat belts and drive safely. The weaker

message here provides long lasting attitude inoculation treatment for road safety practice, as the message is memorable and presented in a non-threatening manner.

6.3 Limitations and Future Research Recommendations

Although the limitations of this research do not overshadow the findings, it is necessary to identify them while also presenting recommendations for future research. The research conducted included only subjects from North America. As culture can have a profound impact on how an attitude is developed, (Cacioppo & Petty, 1986) future research may consider including a global demographic. Despite having a high number of initial participants, a larger dropout rate than expected was suffered by the second testing session. The lower participant numbers lead to the inability of exploring education as a moderator as well as producing insignificant results for the testing between ages.

Despite being purposely chosen, a valid limitation of this research is the use of smokers only. Furthermore, the category of 'light smoker' is defined as smoking up to $\frac{1}{2}$ a pack of cigarettes daily. Although this category clearly entails much lower consumption of cigarettes relative to the 'heavy smoker' category defined by consuming more than 1 pack of cigarettes per day, the 'light smoker' cigarette usage may also be interpreted as heavy usage when contrasted to non-smokers or more 'social' smokers who only smoke in social situations. If such holds true, the effect of the findings of such research could hold an even higher level of significance. The featuring of tobacco also restricted the survey from including subjects under the age of 18 years old. Future research is also encouraged to include other product categories.

As shown by Ivanov et al. (2009) the real-world marketing environment sees consumers exposed to multiple attacks. Further research will benefit from including several different attacks under different message framing. Finally, although this research provides a greater longitudinal period of testing, future research can examine the longitudinal effects of inoculation treatment further through increasing the time duration of the experiment, including several testing sessions throughout.

6.4 Conclusions

This study shows the successful application of inoculation treatment under marketing conditions. A clear contrast between the effects of inoculation treatment message strength is unveiled. The results support an initial significant impact for strong inoculation messages while also illustrating their quick falloff over a period of 14 days to the point of no longer being significant as a result of time. Meanwhile, the effect of weak counter-arguments are shown to be robust, and by the second time testing period, being significantly more persuasive in contrast to the strong inoculation treatment. Behavior is also identified as the primary driver behind loyalty, suggesting the successful inoculation was mostly subconscious.

This study has also allowed for a longer time period between testing, as many past researches have not allowed for enough passage of time before testing the longitudinal effects of inoculation treatment. By allowing for the longer time testing period this study has demonstrated successful inoculation treatment driven by weak counter-arguments has the potential to not only remain constant, but under certain conditions, increase over time. Through this research, inoculation treatment is shown to be highly effective under marketing conditions.

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Appendices

Appendix One – Ethics Approval Letter



23 March 2015

Roger Marshall
Faculty of Business and Law

Dear Roger

Re Ethics Application: **15/50 Building resistance to attitude change toward a health product.**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTE C) subcommittee.

Your ethics application has been approved for three years until 23 March 2018.

As part of the ethics approval process, you are required to submit the following to AUTE C:

- A brief annual progress report using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 23 March 2018;
- A brief report on the status of the project using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>. This report is to be submitted either when the approval expires on 23 March 2018 or on completion of the project.

It is a condition of approval that AUTE C is notified of any adverse events or if the research does not commence. AUTE C approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

AUTE C grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to obtain this. If your research is undertaken within a jurisdiction outside New Zealand, you will need to make the arrangements necessary to meet the legal and ethical requirements that apply there.

To enable us to provide you with efficient service, please use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at ethics@aut.ac.nz.

All the very best with your research,

A handwritten signature in black ink, appearing to read 'K O'Connor'.

Kate O'Connor
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: David Gadiuta david@auranoc.com; Edwin Rajah

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Appendix Two - Preliminary Survey Question Testing

Overview:

The following is a scenario used in an experimental, quantitative research. Please read the base scenario following scenarios A & B then answer the questions below with your opinion on the strength of the messages presented in scenarios A and B.

Base Scenario:

For the purpose of our experiment, please consider yourself in the following scenario.

As a smoker consciously looking after your dental hygiene, consider that for several years, you have been using a toothpaste brand for especially for smokers named "Crown". This specially formulated toothpaste aids you in countering the negative discoloring effects on teeth caused by smoking.

Throughout your use of the Crown brand, you have not experienced any side effects nor any problems. The whitening treatment it promises has been generally effective. With frequent use of the Crown toothpaste, you are able to keep the attractive white coloring of your teeth.

While doing your shopping and seeking out your regular smoker's toothpaste, you notice a new competing brand 'Royal,' which is selling for the same price as your regular brand. You recall having seen advertising from Royal, which claimed to act much faster and stronger than any existing brand. Thanks to its speedy results, the new Royal brand claims that you would even be able to reduce the treatment frequency and amount of time spent brushing.

Scenario A:

As you are now considering the decision of which brand to purchase, you remember seeing advertising from your regular smoker's toothpaste, Crown. Their advertisement claims that new competitors (such as Royal), only achieve their quick results through the use of a chemical that is proven to cause tooth decay, thus achieving only temporary cosmetic effects. According to Crown, the Royal smoker's toothpaste product fails to aid in the long term improvement of your oral hygiene, and puts your teeth at risk.

Scenario B:

As you are now considering the decision of which brand to purchase, you remember seeing advertising from your regular smoker's toothpaste, Crown. The advertisement highlights the fact that they are very experienced at making smokers' toothpaste, unlike newer market entries. Crown implores you to stick with the brand you know and trust.

Please select how much you agree with the following statements where 1 is strongly disagree and 5 is strongly agree.

I consider Scenario A to be a strong argument.

1 2 3 4 5

I consider Scenario B to be a strong argument.

1 2 3 4 5

I consider Scenario A to be stronger than Scenario B to be a strong argument.

1 2 3 4 5

I don't consider Scenario A to be a weak argument.

1 2 3 4 5

I don't consider Scenario B to be a weak argument

1 2 3 4 5

Appendix Three - Survey Questionnaire

Study overview

(This will be the opening overview of the purpose of the experiment as shown to participants.)

The following survey is designed as the experimental part of a study seeking to measure attributes of the attitude formation process. Data generated by this research will be looking into the changes or lack thereof in attitudes toward two fictional smoker toothpaste brands.

Please allow yourself to become immersed into the given scenario. Through answering the questions truthfully and to the best of your ability, you are contributing toward furthering our understanding of attitude change.

The results will aid in furthering research efforts in general social sciences, business and philosophy fields concerned with the understanding of attitude.

Survey Questions & Scenarios:

Base scenario

For the purpose of our experiment, please consider yourself in the following scenario. As a smoker consciously looking after your dental hygiene, consider that for several years, you have been using a toothpaste brand for especially for smokers named "Crown". This specially formulated toothpaste aids you in countering the negative discoloring effects on teeth caused by smoking.

Throughout your use of the Crown brand, you have not experienced any side effects nor any problems. The whitening treatment it promises has been generally effective. With frequent use of the Crown toothpaste, you are able to keep the attractive white coloring of your teeth.

While doing your shopping and seeking out your regular smoker's toothpaste, you notice a new competing brand 'Royal,' which is selling for the same price as your regular brand. You recall having seen advertising from Royal, which claimed to act much faster and stronger than any existing brand. Thanks to its speedy results, the new Royal brand claims that you would even be able to reduce the treatment frequency and amount of time spent brushing.

Strong counter-argument version:

As you are now considering the decision of which brand to purchase, you remember seeing advertising from your regular smoker's toothpaste, Crown. Their advertisement claims that new competitors (such as Royal), only achieve their quick results through the use of a chemical that is proven to cause tooth decay, thus achieving only temporary cosmetic effects. According to Crown, the Royal smoker's toothpaste product fails to aid in the long term improvement of your oral hygiene, and puts your teeth at risk.

Weak counter-argument:

As you are now considering the decision of which brand to purchase, you remember seeing advertising from your regular smoker's toothpaste, Crown. The advertisement highlights the fact that they are very experienced at making smokers' toothpaste, unlike newer market entries. Crown implores you to stick with the brand you know and trust.

Control group version:

You are now considering the decision of which brand to purchase.

The participants will then be asked to answer a series of nine questions, in a mixed order (separated here for convenience). Three of the questions are designed to consider the formative power of cognitive decision processes, three emotional processes and finally three items assess the likelihood of purchase. The questions will be answered with a 7 point Likert scale.

Questions: (These are presented in mixed order)

Please either agree or disagree with these statements

Cognitive questions:

Given the effective results I have experienced using Crown, I have no reason to consider a new toothpaste.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I have given serious consideration to the claims of Royal, the new smoker's toothpaste.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I think that the new Royal brand toothpaste offers better value than the Crown toothpaste I currently use.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Emotional questions:

I would be excited to switch to Royal, the new fast acting smokers toothpaste.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I feel very attached to Crown, my current and effective smokers tooth paste.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I'm uncomfortable with the idea of switching from Crown to the new brand, Royal.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Purchase likelihood questions:

I will stick with my regular smoker's toothpaste, and continue to buy Crown.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I am keen to purchase the new smoker's brand, Royal.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

The next time I buy smokers toothpaste I will ignore the new brand, Royal.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Appendix Four - Participant Information Sheet

Date Information Sheet Produced:

04/03/2015



Project Title

A study of smokers' attitudes

An Invitation

My name is David Gadiuta and I am conducting this research as part of my business master's degree. I invite you to take part in this research survey. In doing so, you will aid in furthering research efforts in general social sciences, business and philosophy fields concerned with the understanding of attitude, while also helping me reach my goal of completing my qualification. All data collected will remain anonymous, and you may withdraw at any time prior to the completion of data collection.

What is the purpose of this research?

This research is part of David Gadiuta's master's thesis qualification offered by AUT University, New Zealand. Should the findings come to be significant, a journal article will also be submitted covering the research findings.

How was I identified and why am I being invited to participate in this research?

Having identified yourself as a smoker and also being subscribed as an active panel participant for Cint, you have automatically been notified about the research through Cint. Your age has also qualified you for this research as we are excluding persons under 18 due to the legal implications of smoking, as well as persons over 55, as this group is less likely to be concerned with dental care specific to smokers.

What will happen in this research?

Data generated by this research will be looking into the changes or lack thereof in attitudes toward two fictional smoker toothpaste brands. You will be randomly designated to 1 of 3 groups that will be exposed to slight variations of a made-up scenario. Considering the scenario, you will then be asked to answer 9 questions. A follow up will then take place approximately 14 days later. The data will be collected and analyzed. Only group information will be kept, no personal information will be accessed, ensuring your anonymity is kept. The data collected will be used solely by the researcher, David Gadiuta in his attitude formation research project.

What are the discomforts and risks?

There are no foreseen discomforts or risks in participating in this research.

How will these discomforts and risks be alleviated?

Through maintaining anonymity, any risks or discomforts that may occur will be minimized.

What are the benefits?

The results will aid in furthering research efforts in general social sciences, business and philosophy fields concerned with the understanding of attitude. This research will also allow David Gadiuta to complete his thesis, leading to obtaining his Business Master's degree.

How will my privacy be protected?

Cint panel services will ensure that the anonymity of all participants is kept.

What are the costs of participating in this research?

Spread over two sessions, up to 30 minutes of your time may be required.

What opportunity do I have to consider this invitation?

As per your contract with Cint.

How do I agree to participate in this research?

By being a panel member of Cint, you will agree to participate in this research through the prompts provided.

Will I receive feedback on the results of this research?

If you would like a copy of the finished work, please write to Professor Marshall, address below.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Professor Roger Marshall +64 9 921 9999 ext 5478

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, Kate O'Connor, ethics@aut.ac.nz , +64 9 921 9999 ext 6038.

Whom do I contact for further information about this research?

Researcher Contact Details:

David Gadiuta, david@auranoc.com

Project Supervisor Contact Details:

Professor Roger Marshall, roger.marshall@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on *type the date final ethics approval was granted*,

AUTEC Reference number *type the reference number*.