

THE EFFECTIVENESS OF ATTITUDE INOCULATION OVER TIME

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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 two separate ethics approvals for the studies conducted in this thesis. The first ethics approval for experiments 1-3 was approved on the 7th of November 2018, and valid for a period of three years, until 7th November 2021. The second ethics approval for experiments 4-5 was approved on 26th November 2020, and valid for a period of three years, until 17 November 2023. The ethics approval letters are shown in Appendix One.

ABSTRACT

Attitude inoculation occurs when a subject is exposed to an argument aimed at a pre-existing attitude, then given a refutation to the argument. This bolsters the pre-existing attitude and, in the process, leaves the message receiver prepared to resist future attempts to change their attitude, by having provided counter arguments. There is consensus among scholars and practitioners that attitude inoculation techniques are indeed effective for developing resistance to attitude change (Matusitz and Breen 2013; Niederdeppe, Gollust, and Barry 2014; Pfau et al. 2003) Since its inception, inoculation theory has been studied across multiple fields and has especially been of interest in a marketing context.

Several gaps in the current literature are explored in this thesis. The primary problem identified is the lack of longitudinal research conducted to date on the topic of inoculation. Of those studies that do explore longitudinal effects, the vast majority have only done so with periods less than two weeks, despite this being identified as the common point of decay in the effectiveness of inoculation treatments (Banas and Rains 2010). The studies in this thesis are amongst the first to extend past the two-week period. In addition, these studies are also at the forefront of inoculation research in terms of examining differences in argument strength and the effects of moderators such as age, gender, income, and education. Finally, the implementation of a booster message is novel, in that reminder messages (boosters) are only now beginning to be studied, despite being a major unknown factor in the long-term workings of inoculation.

In this thesis, the longitudinal impact of inoculation treatments with varied inoculation message strength is explored through multiple survey experiments. The primary analysis method consists of ANOVA with interaction calculations followed by

targeted t-tests. The data analysis shows that the effectiveness of attitude inoculation is driven by the inoculation message strength, the passage of various time periods and subject matter relevance. Inoculation success, or lack thereof, is also guided by moderating factors such as additional messages (boosters), gender, age, relationship status, education, and income.

From the findings of this thesis, it can be determined that inoculation requires many factors to be in synchrony to be successful. In a marketing setting, attitude inoculation should not be generally applied, instead, specific strategies should be tailored to suit goals. In terms of purchase intent, a strong argument is most effective immediately after an exposure, after which the effect will decay over time, to the point where having applied a strong inoculation is worse than having done nothing at all. Though a weak argument is not initially favorable, over time it is found to be generally more effective than a strong argument. This effect will peak at around two weeks, after which a weak argument will also become less effective than no inoculation.

Increasing subject relevance to the target group appears to greatly improve the effects of inoculation. This increased relevance results in some mitigation of long-term decay for strong arguments while significantly improving initial response to weak inoculation treatments for which long-term effects are sustained. Booster (reminder) messages do not appear to increase the effectiveness of inoculation. Very few cognitive effects were found throughout the experiments conducted, however, supporting evidence for identifying emotion as a primary indicator for inoculation response has met predictions.

1. CHAPTER ONE: INTRODUCTION

Inspired by medical vaccination, the concept of attitude inoculation dates back to the original 1960's work spearheaded by William J McGuire. Many studies since have agreed that attitude inoculation is the most effective method in maintaining favourable attitudes and enhancing peoples' ability to resist persuasive attacks (Bobi, Ivanov, Pfau, & Parker, 2009; Lin, 2005; Parker, Ivanov, & Compton, 2012; Parker et al., 2016). However, although the concept of attitude inoculation research appears to be gaining traction, a growing body of evidence suggests that the subject area yet remains under-studied. A particular limitation identified by previous literature stands out, the longitudinal effect of attitude inoculation (Banas and Rains 2010). The primary aim of this research is to identify the effects and properties of attitude inoculation treatments over different time periods. Although there have been many longitudinal studies exploring the nature of attitude, as well as the relationship between attitude change and time (Compton, Jackson, and Dimmock 2016), only a handful of researchers (including the author of this thesis) have ventured into considering the long-term effects of resistance to attitude change through an inoculation treatment (Gadiuta 2015; Ivanov, Parker, and Pfau 2012). Clear, consistent results, under multiple conditions and framing of inoculation treatment have yet to be established.

The ideal time given between an attitude inoculation treatment and an exposure to an attack remains an area of debate. Scholars argue about the fine balance between inoculated individuals needing time to generate counter arguments and thus making them more resistant to attacks and the natural process of motivation to counter-argue decaying over time as the subject is distanced from the subject matter (Banas and Rains 2010). A critique in either case is that some past researchers have not allowed enough time to pass before testing the impact of the given inoculation treatment, generally testing only hours or days after the initial inoculation treatment (Pfau et al. 2006).

Furthermore, the comparative measures between varying inoculation argument strengths have not been sufficiently tested. In a previous experiment, I found a strong inoculation treatment to be effective immediately after exposure, however decaying drastically to the point of being worse than no treatment at all after some two weeks. On the other hand, in the same study I found a weak inoculation treatment to be increasingly more effective than the strong inoculation treatment as time went on for a duration of two weeks (Gadiuta 2015).

These are the gaps this thesis is intended to address. The following research includes examination of the long-term difference between strong and weak attitude inoculation arguments. In addition, to reflect real-world experience, the longitudinal impact of booster messages within an inoculation setting will also be examined. Booster messages are detailed further in this thesis. These quantitative experiments will seek to clarify what is happening in the process of attitude inoculation and its long-term outcome. To further strengthen the theoretical underpinning of the observed effect, measures of the emotional and cognitive processes leading to attitude change (and/or resistance to), are explored.

Chapter Two first presents a background on attitude literature, outlining the attitude formation process. Cognition, behaviour, and emotion are then discussed as primary attitude components, followed by message framing, attitude categories, associations, and attitude measures. Attitude manipulation techniques are then explored, arriving at attitude inoculation theory. Message strength is then discussed along with the effects of multiple attacks and communication. Chapter Three addresses the major moderators and mediators of this research. Time, intent and loyalty, message relevance, booster and repeat messages are discussed, followed by the demographic categories of gender, age, relationships, knowledge and education and income. Chapter Four probes the research context, marketing. Chapter Five declares the research question hypotheses. Chapter Six

is an overview of the research methodology, including presentation of the studies conducted, data acquisition tools, participant inquiry and preliminary testing. Chapter Seven consists of analysis and results. Chapter Eight is a discussion of the experiment findings and limitations. Chapter Nine is a conclusion of the work conducted along with a discussion of practical applications and suggested future research.

CHAPTER TWO: ATTITUDES AND ATTITUDE INOCULATION

This chapter presents a topical review of research to date on the subject matter of this thesis. While the experimental topic is that of attitude inoculation, prior to engaging in experimentation it is important to discuss and understand attitude formation, attitude change and resistance to attitude change. Those familiar with attitude and attitude formation may like to move straight to section 2.14 of this chapter.

2.1 THE STUDY OF ATTITUDES

Over the years, the study of attitudes has been an exceedingly popular field, especially in social sciences and disciplines interested in human behaviour. The concept of attitude may be, and usually is, considered from a perspective of information-processing. Fishbein and Ajzen (1975) reflect on expectancy-value models that suggest such a starting point determines information gained from stimuli or about oneself will lead to the formation of attitudes and beliefs. Though attitudes and beliefs often work in unison, it is important not to confuse the two. Petty and Cacioppo 1996 define belief as

“The term reserved for the information that a person has about other people, objects and issues, where this information may be factual, or it may be only one person’s opinion. A belief may have positive, negative or no evaluative implications for the target of information” (p.7).

Like attitudes, beliefs may be long-lasting or forgotten, especially as new beliefs are formed (Fishbein and Ajzen 1975). Kahneman (2011), reflects on belief formation being dependent on the understanding of what a statement means to be true for belief or disbelief to take place. The relationship of attitudes not only with beliefs, but also with emotion and behaviour, as well as key moderators such as subject relevance and booster messages guiding attitude accessibility and formation are discussed throughout this study. Undoubtedly, the attraction to the study of attitude is a result of not only the wide

application of attitude theories to numerous fields, but also the role played by attitude in every facet of one's life. To understand attitudes is to understand ourselves. What has become known as attitude is, in fact, a hypothetical construct, which we are unable to observe directly. We can, however, measure attitude through direct and indirect responses and observations (Ajzen 2005; Petty and Cacioppo 1996).

The primary rule of assessing an attitude is the requirement of the measurement to reflect positive, negative or mixed evaluations of a stimuli (Ajzen 2005). Attitude itself belongs to a natural, internal, and personal evaluative scale where attitudes are located along a dimension. This scale rates stimuli from negative to positive, including a natural mid-point. Attitude can only truly be defined as a person's location on this scale at a particular point in time (Fishbein and Ajzen 2010). To determine the position of a said attitude, reasoning can be used to determine disposition. Previous studies summarize the measurement of attitude narrowed down to a calculation of belief and intent.

However, it is not enough to simply ask subjects to self-report their assessment and feelings toward stimuli (Fishbein and Ajzen 1975). Scholars have more recently realized that there has been a significant omission in the study of attitudes, this being that people may not always hold the attitudes they report and that attitudes may not always be consciously controlled or accessible (Rydell and McConnell 2006). Several established models have outlined the formation and categorization of attitudes (Bohner and Dickel 2011). Many concepts have also been put forth in the attempt to understand attitude manipulation and attitude change. In addition, several theories such as... attitude inoculation, defense by avoidance and supportive therapy have also been established in the quest to better understand attitude retention and resistance to attitude change.

2.2 WHAT ARE ATTITUDES?

An attitude can be summarized as an evaluation toward a thought or stimulus (Bohner and Dickel 2011; Petty and Cacioppo 1986). Fishbein and Ajzen (2010) define the term 'attitude' as

"The evaluation of an object, concept, or behaviour along a dimension of favour or disfavour, good or bad, like or dislike" (p78).

These evaluations vary in strength and, on a daily basis, are automatically triggered in response to stimulation by a thought or object (Fishbein and Ajzen 1975). Wood et al. (2005) describe attitudes as the tool used to provide a quick link between a stimulus and associated behaviour. The term attitude comes from the Latin words *apto* and *acto*, meaning aptitude or fitness, and posture of the body. The naming inspiration comes from the observations that emotion is tied to subconscious bodily responses (Hatfield, Cacioppo, and Rapson 1994). That is, human uniform actions such as the brow scrunching when feeling anger, pupil dilation during attraction or cowering while having feelings of fear.

Due to our limited processing capability, the restriction of time, and the typical adequacy of existing attitudes to cope with everyday experiences, new attitudes are most often formed based on evaluation of previously held attitudes that match a given criterion (references). When a person realizes that something newly encountered, (be it an object, thought or emotion) may be linked to an existing attribute evaluation, at least in part, the existing attitude will shape a new attitude toward the object. If a person holds a negative attitude toward the loud roaring engine of a race car, this attitude will quickly be reflected on when shaping the attitude toward a new stimulus with a similar attribute, such as a motorboat (Ahluwalia 2000; Fazio, Powell, and Williams 1989). If this person were then to purchase a boat, this pre-existing attitude would be the guiding force behind whether they

purchase a motorboat or a sailboat. Although the concept of what an attitude is generally enjoys simplistic descriptions, there are many attributes of attitudes that are deeply complex. Conflicting attitudes for instance, can be held in unison, at the same point in time (Meijer et al. 2015; Rydell and McConnell 2006). Attitudes toward exercise are shown as an example of this conflict by Berry (2016) who notes a person may have favourable attitudes toward exercise recognizing its health benefits, while also finding exercise unpleasant. Because attitudes are developed with the automatic aid of associations to feelings, beliefs and knowledge, it may be appropriate, at least in most cases, to describe attitudes as biased evaluation of stimuli (Wood et al. 2005). Such traits of attitudes will be detailed and discussed further.

There are three basic features that define the concept of attitude. First, scholars concur that attitudes are learnt and build through experience and reflection; we are not born with pre-existing attitudes, thus leaving all our attitudes potentially subject to change. Second, attitudes predispose action and, third, thoughts and actions will be reasonably consistently favourable or unfavourable toward the stimuli (Fishbein and Ajzen 1975). In social psychology, attitudes have been presented as the pillars holding the construct of one's perception of self (Pomerantz, Chaiken, and Tordesillas 1995). As Cacioppo & Petty (1986) say, 'The basis of attitudes lays in behavioural, affective and cognitive experiences' (p127). Just as these processes shape attitudes, in turn attitudes guide behaviour, cognitive evaluation and emotional response (Chaiken 1987; Fazio et al. 1989).

Behaviour prediction is directly associated with attitude certainty. As someone is more confident about a held attitude, they are more likely to act out on it (Tormala 2016). Our attitude certainty is maintained through appraisal of personal and environmental cues. Cognitive psychologists consider attitudes as the driver in all aspects of our lives, from the feelings guiding the preference toward social groups we seek to join, to purchase decisions, self-perception, and even bodily sensations. Our attitudes can be comprised of

multiple or single cues which we experience mentally and manifest in our thought, behaviour, and emotions. Attitudes and behaviour are also the driver of personality traits. What we refer to as personality traits are consistent individual, behavioural/attitudinal responses to a series of trait-related stimuli (Ajzen 2005). A person who dislikes water for example, is also likely to express no interest toward water-based sports. These traits reflect attitude consistency when responding to related stimuli under similar conditions. Attitudes are not only important to ourselves, but knowledge of peers attitude are socially important as they help predict behaviour and consistency (Ajzen 2005; Jenks 2001; Petty and Cacioppo 1996). Consistency is referred to as a critical necessity of effective functioning in the world.

2.3 ATTITUDE FORMATION

Initially, from infancy, attitudes are formed through primitive reactions to pleasure and pain. Should a stimulus evoke pain, for instance, a negative attitude will likely be formed toward it. As we grow, the complexity of feelings and cognitive reasoning through which we form attitudes also advances (Fishbein and Ajzen 1975; Petty and Cacioppo 1986). To illustrate this, one can imagine the scenario of visiting the dentist. Both children and adults dislike the pain and discomfort associated with most dentist visits. A child likely only has the hope of a lollypop after the dreaded encounter to look forward to. An adult with more developed reasoning, however, is aware, and can better appreciate, that the pain and discomfort of dental procedures is worthwhile for the maintenance of healthy teeth. Such greater goal realisation checks physiological needs, such as the ability to chew nutritious foods as well as ego-centric motivators to the likes of healthy teeth being associated with an attractive appearance. In such a case, for the adult the overall attitude toward the dentist will be more positive than that of children. Attitudes that meet higher grades of 'feeling good' generate higher levels of certainty (Tormala 2016). The primitive

system of pleasure and pain has a great degree of influence and is often the base to which we revert.

Known by terminology such as central and peripheral, heuristic and systematic and more recently System 2 and System 1, Cacioppo & Petty, (1986), Chaiken (1987) Kahneman (2011) along with other scholars have conceptualized linear frameworks of attitude formation and attitude change. The general consensus of the Heuristic Model of Persuasion (Chaiken 1987) and the Elaboration Likelihood Model of Persuasion (ELM) (Petty and Cacioppo 1986) establish polar differences in attitude formation, where people may form an attitude at any stage of the scale, without restriction to any one such point. The more recent System 1 and System 2 processing models presented by Daniel Kahneman (2011) differs from the ELM and the heuristic and systematic models through including basic, effortless, thought and memory retrieval with other quick processes otherwise found under the peripheral route (such as emotional and habitual responses).

An attitude may be formed through peripheral cues, central cues, or any combination of the two (Fishbein and Ajzen 1975; Petty and Cacioppo 1986). Peripheral cues can trigger central processing when the person becomes motivated. Likewise, peripheral re-evaluations can occur when reflecting on systematic processing. When purchasing a car, though excited and intrigued by the technical specifications and features, a dislike of the car's orange colouring can be enough to offset the otherwise positive evaluation. The way processing manifests is determined by various factors. Does a stimulus evoke attention from a subject and to what degree? Does the subject have easily accessible prior knowledge toward or alike to the stimulus? Is there enough time to carefully evaluate properties of the stimuli? Is there enough motivation to carefully analyse information? Message strength, the delivery mode and message framing are but few of the components regulating the processing of information (Mayer and Tormala 2010). To

maintain clarity and consistency, this research will use the terminology of central and peripheral routes, as used in the ELM.

2.4.A THE ELABORATION LIKELIHOOD MODEL OF PERSUASION

Although the ELM has been critiqued, largely due to its age and the social climate at the time of its conception being dominated by mass media (Kitchen et al. 2014), yet there is no model that better draws the process of attitude formation and change. Although leaving itself open to challenge, this model has managed to continuously offer explanation of how we operate. In the following explanation I present the stages of the Elaboration Likelihood Model of persuasion and link various stages of the ELM to reference other models such as the Heuristic Systematic Model of Persuasion, cases and additional works.

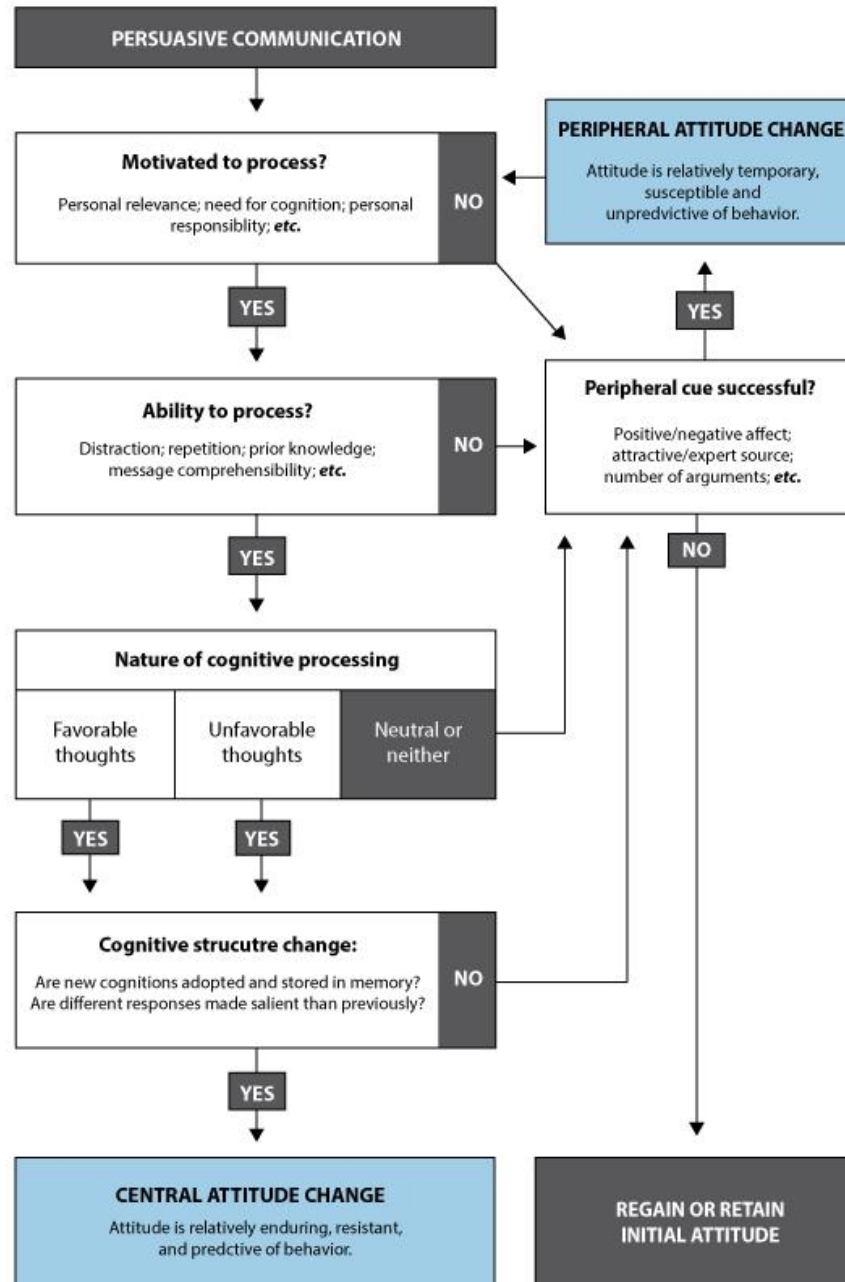


Figure 2.4-A1 – Elaboration Likelihood Model of Persuasion

The Elaboration Likelihood Model of Persuasion
(Petty and Cacioppo, 1986)

2.4.B STAGES OF THE ELM

2.4.B1 PERSUASIVE COMMUNICATION

The first stage of the ELM begins with something of external origin to the subject. For evaluation to begin, we must first be exposed to a persuasive communication. In some ways, most stimuli can be thought of as persuasive communication, only the source of the communication has different origin where some messages may be natural, created by environmental conditions, while others may be premediated and social in origin. When walking along a narrow stairway, the danger of slipping is assessed by environmental cues; however, deciding which cookies to purchase when inspecting the packaging of your two favorite brands is very much influenced by premeditated cues.

Before we can decide how we will process a message, the stimuli must engage our sensory receptors, this meaning a message must be heard, seen, felt, touched or tasted. Lang (2000) identifies this stage as far more critical than previously thought, as most information that enters sensory storage is held from as little as 300 milliseconds to 5 seconds, after which point, if this information does not move to additional processing, it will be lost as it is overwritten and replaced by new information. The processing of the persuasive message is driven by factors such as the receiver's prior persuasion knowledge, message framing, social and environmental conditions and message timing (Shu and Carlson 2014; Wood 2000).

2.4.B2 MOTIVATION TO PROCESS THE MESSAGE

After the persuasive communication has been evaluated by sensory receptors, there will then be an assessment of whether further processing will be allowed. In the Limited Capacity Model, Lang (2000) identifies two rules, where at least one must occur. For further processing, first, information must be relevant to the goals and needs of the individual or, second, information must represent change or an unexpected happening in the environment. Motivation is a fundamentally individual measure as we all differ in the extent we are able to process the automatic activation of an attitude (Rydell and McConnell 2006).

Most of our attitudes are evaluated by, and grouped with, existing attitudes (anchors); motivation must occur for pre-existing attitudes to be activated (Fishbein and Ajzen 2010). Motivation is based on many factors, such as associations and framing elements that are discussed in later sections. In persuasive messages, generating attitude uncertainty will motivate people to process the message and crave more information. On the other hand, stimulating attitude certainty will aid in building attitude strength and encourage behaviour reflective of the attitude (Tormala 2016). Messaging processing comes under pressures of at least some cognitive resources, manual or automatic (central or peripheral) relying on implicit or explicit memory. If a message recipient chooses to allocate fewer resources to a task than required, or if a stimuli requires more resources than a recipient has available, the message will not be processed further (Lang 2000; Petty and Cacioppo 1986).

Motivation is a gradient state. As people are more motivated, they will afford higher cognitive attention to a stimulus. When motivation diminishes, the opposite occurs, with more reliance put on response with less effort. Faced with multiple primers seeking attention, the first exposure will generally produce the most elaboration motivation

(Haugtvedt and Wegener 1994). In a situation such as that where people are exposed to large daily doses of advertising, often exceeding their will to process information, consumers gain a higher sense of scepticism towards over practiced persuasion methods (Lemanski and Lee 2012).

2.4.B3 ABILITY TO PROCESS THE MESSAGE

It has been well established, and is commonly accepted, that our ability to process a message is limited (Heath 2009; Lang 2000; Petty and Cacioppo 1986). McGuire (1961) famously refers to humankind's mental capacity as 'the lazy organism'. What at first may seem like a weakness is also great strength, however. It is horrific to imagine how life may be if we had no choice but to carefully process every piece of information we are exposed to.

The basic idea of the Elaboration Likelihood Model of Persuasion is that if ability is reduced, the message will be processed peripherally (Petty and Cacioppo 1986). For instance, someone may see an online graphic advertisement for a music synthesizer they are interested in. The advertisement is appealing and motivates them to digest the linked information, however, if they are an English speaker and the product details are written in French or Japanese, they simply do not have the ability to continue processing the information. They will then rely on peripheral processing, though should this also fail, they will regain or retain their initial attitude. Ability is also moderated by other cues such as distractions and interruptions. There is good reason why libraries are a place of quietness. Imagine the sound of a two-stroke lawn-mower engine firing as you're attempting to digest the information of a research article. Such a distraction halts the ability to process the information. The more engagement and attention required, the more impact a distraction will have (Petty and Cacioppo 1986).

Interested in the workings of interrupted persuasion attempts, Kupor and Tormala (2015) note there are different types of interruptions. Some interruptions happen during engagement with a stimulus, lowering the ability to process the original message. Other interruptions may permanently disrupt a message retrieval process, preventing viewers from resuming processing, even when desiring to do so. Lastly, some interruptions are only temporary. Such interruptions allow the message viewer to resume processing of the initial message. Under momentary interruption conditions and so long as the interruption takes place before the core message content, interruptions were found to increase message processing due to heightening curiosity (Kupor and Tormala 2015). As Kahneman (2011) explains, when cognitive strain is increased, systematic processing is more engaged. If a lawnmower starts while two students are studying, the student who is motivated to understand what they are reading may process the information better than before the lawnmower was started, as they are engaging in more deliberate, detailed processing. The unmotivated student, however, will suffer greatly from the distraction.

Though generally the ability to process messages can impair persuasion, research shows there are exceptions. The source and delivery of a distraction are also important factors to consider. Studying the effects of audio and visual distractions on implicit brand memory when playing video games, Choi, Lee, and Li (2013) found auditory distractions to be highly disruptive in retrieval of implicit brand memory. This effect of audio distractions showed greatest impact toward familiar brands, likely due to the ease of access in assessing the brand in contrast to a newly encountered brand where more processing is required.

The ability to process messages is also mediated by psychological functions such as self-control. Due to the need for a higher cognitive load, self-control is a relatively limited resource (Baumeister, Vohs, and Tice 2007). The result of self-regulatory depletion

is that high-certainty attitudes become vulnerable when exposed to strong attacks (Petrocelli, Williams, and Clarkson 2015).

2.4.B4 PERIPHERAL PROCESSING

Peripheral processing occurs automatically, or at least mainly so, manifesting quickly and with little effort. Peripheral processing is largely directed by quick emotional responses, habitual behaviour or easily accessible cognitive information (Kahneman 2011; Lang 2000; Petty and Cacioppo 1986). Peripheral message processing may not even go as far as to differentiate between a strong and weak argument, but rather respond to less complex informational cues such as attractiveness of the message source (Todorov, Chaiken, and Henderson 2002). Most of our decision-making and attitude formation will occur through peripheral processing (Forret and Turban 1996). Through cognitive, emotional or behavioural repetition, processing of a cue will eventually become peripheral (Petty and Cacioppo 1986). Certain stimuli processed through the peripheral route are involuntarily, automatic. Should you hear the name “Bruce Wayne”, many will think of Batman as most of us will also think of the iconic yellow ‘M’ arches when hearing the name ‘McDonalds’. The more familiar and practiced we are with a stimuli, the more likely we will be in processing it, and similar stimuli, through the peripheral route (Chaiken 1987).

Advertisers, especially of low involvement products, are well aware of this, and given the competitive background noise of such products, marketers aim to build simple yet strong brand associations (Heath 2001). The more positive primitive associations that are made with a brand, the more likely the brand’s product will be chosen under low-involvement shopping conditions. Factors such as environmental distractions and media multitasking play a great role in our choice of message processing (Angell et al. 2016; Petty and Cacioppo 1986). As our environment is highly demanding in attempting to gauge our attention and motive processing, from natural occurrences like dark clouds symbolizing

rain, to social situations like slowing down when seeing a police car in the distance, we develop the ability to move more cues to peripheral processing. When a cue becomes familiar or offers strong anchoring, we are more likely to accept it and generate at least some automated response (Kahneman 2011).

This peripheral processing system is one we come to rely on as a basic assumption of statistical probability or familiarity (Sloman 1996). It is our more animalistic, older processing system which is driven by more primitive “feel-good” reactions. In low risk, low effort situations, peripheral processing will be executed so long as people do not perceive a high penalty or cost (Gnepe 2012; Sloman 1996). Should two political candidates not be seen as threats, a voter may be more inclined to vote for a candidate just because they are found to be more physically attractive. Most often attitudes constructed through peripheral processing will not be strongly held, are more susceptible to counter-arguments, and are often temporary and lesser predictors of a person’s behaviour. Cacioppo & Petty, (1986) and Todorov, Chaiken, & Henderson, (2002) allude to peripheral processing as the route through which messages will be processed superficially.

2.4.B5 CENTRAL PROCESSING

Central processing is more complex and demanding of cognitive resources, this is due to the processing requiring more evaluation, thus more energy. When considering exposure to new stimuli, central processing is triggered by information which requires careful assessment, or which is perceived as high impact to the subject (Daniel Kahneman 2011; Petty and Cacioppo 1986). Attitudes formed through the central processing route result in higher attitude strength while also often evoking change in closely related attitudes, even ones not mentioned. This occurs due to people naturally attempting to maintain consistency among opinions toward logically related issues (McGuire 1960). It

requires conscious attention and energy. When considering exposure to new stimuli, central processing is triggered by information which requires careful assessment or perceived as high impact to the subject (D Kahneman 2011; Petty and Cacioppo 1986). If a political candidate becomes associated to potentially costly traits such as if one of their policies would result in the shutting down of the voter's workplace, the voter will more consciously, carefully and critically evaluate the candidate, with assessments of complex attributes held by the candidate outweighing automated assumptions and qualifiers such as perceived physical attraction. If central and peripheral cues clash, central route scrutiny will weaken peripheral effects (Todorov et al. 2002).

Attitudes formed through central processing are said to be longer-lasting and more predictable of behaviour (Petty and Cacioppo 1986). Because central processing relies on more in-depth analysis, we simply don't have the time, resources and or motivation to apply it to most of our encounters (McGuire 1960). Such limitations of central processing are generally known. Kahneman, (2011) explains how this awareness can even shape our social behaviour. The scenario of a carload of adults overtaking a truck is used, where in such a situation, the passengers will disengage conversation as they are aware the driver requires deeper concentration for the maneuver.

Attitudes formed through the central processing route also result in higher attitude strength while also often evoking change in closely related attitudes, even ones not mentioned. This occurs due to people naturally attempting to maintain consistency among opinions toward logically related issues (McGuire 1960). The strength of such attitudes can be accredited to the cognitive reasoning processes used, along with the investment of resources allocated to analysis of the of the initial attitude forming information. People are aware of the effort placed in the initial formation of the attitude, including the time and energy spent in its development, thus they will be more inclined to maintain these attitudes. Consider a pupil who has spent a summer struggling with grasping basic

statistics, pained by the difficulty of the subject, and tormented by the sacrifice of not joining their friends at the beach. If later in life the student is challenged on the authenticity of this subject, they will be reluctant to change their position on its importance. Higher involvement also arouses high impact emotional states (Morris, Woo, and Singh 2005) creating additional pressure on maintenance of the attitude. Strong attitudes that are held with clarity and confidence of correctness are specifically referred to as attitudes held with certainty (Cheatham and Tormala 2015). These attitudes are associated with a heightened motivation to defend the attitude, increased likelihood of discussing the attitude and greater desire to persuade others to adopt the attitude.

Attitude certainty should not be mistaken for habit. Habits are automatic responses created by concurring results in similar situations, or regular environmental response requirements. These are not necessarily driven by strong attitudes, but rather by repetition of behaviour. Habits can be replaced by newly formed chronic behaviour (Bohner and Dickel 2011) while attitudes held with certainty are replaced and maintained by more complex mechanisms discussed throughout this research.

2.5 MEMORY

Successful persuasion is entirely reliant on the message and the corresponding attitude being stored in memory. Storage of attitudes is achieved through implicit and/or explicit memory (Bohner and Dickel 2011). Newly formed attitudes are generally first stored in explicit memory. Explicit memory is accessed manually, where a conscious, willful process of remembering and piecing together previously encountered information takes place (Chechile, Sloboda, and Chamberland 2012; Ramachandran 2002a). Explicit attitudes are prone to faster change in response to new information. Developed, stronger attitudes, however, eventually lay stored in implicit memory. Implicit attitudes are slowly formed and changed, generally through learning and associative reasoning (Rydell and

McConnell 2006). Implicit memory is responsible for automatic and even unintentional memory retrieval (Ramachandran 2002b) and is the system mostly associated with long-term thought retrieval, or 'learned' memory. Chechile et al. (2012) notes; implicit memory alone is not capable of supporting conscious recall or confident correct recognition. Though functioning indifferently physiologically. Addante (2015) alludes to the underlying theme being that implicit and explicit memory relies on the same neural structures.

Memory is a vital element of attitude learning and maintenance. Reflecting on this aspect, Daniel Kahneman (2011) elegantly states 'What you see is all there is'. The meaning behind this quote is simply that even if someone has a particular attitude, belief or knowledge, it is as if non-existent if it is not accessible when required. Even though a student may know the capital of Fiji is Suva, if the pressure of a geography test is distracting them, the information is as good as non-existent iff this information was not retrievable from memory when it was needed during the test. For persuasive messages to be successfully implemented and reliably reflective of behaviour, reactions and or assessment of stimuli or at least stimuli anchors must be stored in memory. In order for attitude change to occur through central processing, the reasoning action must have a negative or positive effect on the attitudes held, otherwise there is no attitude change (Petty and Cacioppo 1986). Though memory is essential for both peripheral and central (purposeful) attitude formation and the retrieval processes, the manual act of information retrieval under central route conditions is more dependent on conscious memory access. This holds true due to peripheral processing relying more on primitive or very strongly held attitudes, thus generally having much easier access to memory. Reacting positively to a red dress due to the colour being one's favourite is a less involved process than assessing how someone feels about the university paper they are signing up for. More recent research has shown strong evidence that explicit and implicit memory are more linked than previously thought. Serra and Ariel (2014) explore this by assessing people's judgment of

learning. Their findings indicate that to some degree, everyone's processing is influenced by implicit information. This notion is also supported by Park and Donadlson (2016) who found that repetition priming, increases recollection speeds, suggesting unconscious memory has an influence on conscious memory recall.

A handful of prominent beliefs will drive attitudes. Researchers have concluded that when subjects are asked to list properties of an object, only the first few will be conspicuous (Fishbein and Ajzen 1975). Accessibility to attitudes is dependent on the part of memory in which an attitude is located. Experiments to date have found several brain regions to be engaged during memory retrieval. Though many areas of the brain are responsible for memory, researchers have identified patients who have suffered severe temporal lobe damage becoming unable to form new memories (Ramachandran 2002a). In normal subjects, as time passes, new attitudes may either be forgotten or move into implicit memory. The more a newly learned attitude is accessed, the faster it will become stored in implicit memory (Rydell and McConnell 2006).

Conflict between attitudes will mostly manifest between newly learned and old attitudes. This is due to the different rate of change between implicit and explicit attitudes. As the new attitude is learned, the old attitude that is in conflict may still exist implicitly, especially if it was a strongly held attitude. Even when the old attitude is forgotten, conflict can occur with implicit attitudes supportive of the old attitude (Rydell and McConnell 2006). When a person can process information, a newly learned attitude will likely be expressed. However, should processing of information not be achievable or beneficial, one will simply revert to an implicit attitude automatically (Petty 2006). A newly diagnosed diabetic, for instance, will know to refuse the offer of chocolate. Should the same subject be sufficiently distracted however, their new attitude of 'chocolate is bad for me' will be ignored. Automatic processing and availability readiness will present the old attitude of 'chocolate is delicious, I like chocolate', resulting in their consumption of the chocolate. Petty, (2006)

asserts behaviour will best be predicted when harmonious attitudes are held both implicitly and explicitly.

Because of the way our memory systems work, we can maintain independent attitude variations and even conflicting attitudes. This conflict can even apply to attitudes about one object at the same time as implicit and explicit attitude change does not occur at the same rate (Rydell and McConnell 2006). Though we are generally uncomfortable holding conflicting attitudes, such conflicts can manifest based on environmental cues. Somebody that loves their fur coat may forget what is in their closet when protesting a steak house with their vegetarian inclined friends. This occurs more often with attitudes that are indirectly formed on multiple dimensions of association.

In situations where we are unable to process a message we revert to established attitudes guided by implicit memory (Petty 2006; Shapiro and Krishnan 2001). Often smokers that are attempting to quit will revert to smoking after having consumed alcohol and or have found themselves in social situations with lots of distractions such as clubs or bars, for example. Though a new attitude against smoking may have been formed and even self-reported, because the new attitude is not as easily accessible, when a high level of distraction is present and a stimulus is encountered, the likelihood of reverting to older, implicitly held attitudes, drastically increases. This remains true until the old attitude is forgotten and the new attitude makes its way from explicit to implicit memory (Petty 2006). To influence reliable behaviour, the passage of time must be accounted for. The process is sped up if the new attitude is retrieved often and when faced with stimuli calling on the given attitude, distractions lowered. Drug addicts who successfully quit are highly likely to experience relapse. Spruyt et al. (2015) refer to complex factors such as coping strategies, impulsiveness, delayed gratification, and bias to cues. Relapse is also dependent on automatically activated attitudes toward the substance the user was addicted to. It remains

necessary to be mindful of implicit attitude when attempting to generate successful long-term persuasion.

As people are shifting away from mass media consumption, modern advertisers are confidently practicing cross-media advertising (that is, advertising on outlets such as television, print, radio, and internet simultaneously). The cross-advertising approach has been repeatedly confirmed to stimulate explicit retrieval of information. However, when studying the effects of cross-platform versus single-medium advertising on implicit and explicit memory, Vandenberg et al. (2015) found no measurable difference between the strategies when directly measuring implicit memory. Vandenberg et al. (2015) look back on previous studies and propose *“the reason behind this is that the process of implicit memory does not rely on creation and retrieval of novel memory structures, but rather rely on the strengthening of existing memory structures through re-activation”* (p757). Lang (2000) reasons that the underlying sub-processes of encoding, storage and retrieval occur concurrently and may be engaged simultaneously. Implicit memory retrieval is automatic thus it does not rely on systematic, conscious retrieval of previously viewed information (Shapiro and Krishnan 2001). The implicit mind appears to be nurtured by frequency of exposure and is not influenced by exposure type. As such, implicit learning must be measured by evaluation of unconscious processes.

It is important to note that the way a message is recorded is always unique. An encoded message will not be a perfect copy of the original message, rather the message will be stored as perceived by the message receiver, generally in an individualized, idiosyncratic form (Lang 2000). This phenomenon is seen in a game of ‘telephone’, where a person whispers a message to another, with the message passed on from person to person. The last person to hear the message is then asked to share what the message was with everyone, usually resulting in a comedic failure to have successfully received the intended message. As more people are included in the message chain, and as the

message becomes more complicated, the message is more likely to receive more drastic changes. The different workings of implicit and explicit memory should be considered when measuring the effectiveness of advertising messages (Choi et al. 2013; Shapiro and Krishnan 2001).

These differences must also be addressed when developing marketing strategies (defensive or offensive), as people in real world scenarios such as in a natural shopping environment (Vandeberg et al. 2015) will encounter more implicit than explicit triggers, such as those mistakenly stimulated under laboratory conditions. Marketers should be aware of how their customers see their offerings and consider measuring the effects of the campaigns based on uniform perceptions. Explicit memory is mostly engaged during high involvement decision making, that is for instance when having been motivated to make a brand choice, or when processing a big 'high involvement' purchase, such as buying a car. Implicit memory processing on the other hand is mostly evoked during low-involvement choices, such as grocery shopping, or when making impulse purchases (Shapiro and Krishnan 2001). Though likely assumptions can be confidently made about which form of processing will occur in unique situations (for example, most people are likely to engage explicit memory when purchasing a car), implicit and explicit storage and/or retrieval is driven by the exposure to stimuli, and varies in weight on individual response guided by the stimuli and environmental cues (Chechile et al. 2012; Shapiro and Krishnan 2001). For instance, if someone absolutely needs a car, and during the purchase process they encounter time restriction and distractions, they will be more likely to revert to acting on implicit memory cues. Though it is important to address the differences in implicit and explicit memory, researchers must respect that in practice, they are systems that work in unison and in a complimentary fashion.

2.6 ATTITUDE COMPONENTS

There are three primary components of attitude: emotion, cognition and behaviour. While each contributes to attitude formation and maintenance in unique ways (discussed shortly), there are some shared processes. All three can manifest as a result of conditioning or unconditioned predispositions (Hatfield et al. 1994), while for all forms, a message that is easier to understand is generally more persuasive (Shu and Carlson 2014). Specifically, when an emotion is easily evoked, a thought generated and quickly understood, or a person can partake in a behaviour with fair ease, the persuasion attempt has far better chance of success. As outlined by the Elaboration Likelihood Model of Persuasion, certain cues also result in messages being processed in particular ways. A time restraint on decision making for instance, will lead to peripheral processing, resulting in a more emotional and less cognitive response, resulting in shallow behaviour (Whitter and Manolis 2015).

2.6.1 COGNITION

The strongest attitudes are developed when high cognition is in agreeance with strong emotion and *vice versa* (Petty and Brinol 2015). Attitudes evaluated by cognitive processing are longer lasting and more enduring. Because cognitively formed attitudes also tend to be more consistent they are also better predictors of behaviour (McGuire 1960; Petty and Cacioppo 1986). As the end goal of advertisers is to sell product or change behaviour, cognitive processing is sought after in many advertising efforts (Kupor and Tormala 2015).

We can illustrate cognitive attitude change and resistance to attitude change with the brick stacking game, Jenga. In this game, blocks are stacked together as a tower. Players then take turns in removing one block at a time and placing it at the top of the tower, with the goal being not to cause the growing tower to collapse. In Jenga, the blocks

at the bottom of the tower are riskiest to remove as they hold the weight of more blocks, thus they are the last to be touched. We can think of each Jenga brick as an attitude. The bricks (attitudes) at the top of the tower, are newly form attitudes that, although they have links, do not have other attitudes depending on them. The bricks at the bottom of the tower, are central attitudes that we have had far longer. If one of these is changed/removed, a collapse of other attitudes is likely to occur, as the removed 'brick' was an older attitude, that newer attitudes were formed around. This is a reflection of our desire to maintain logical consistency (McGuire 1960).

An effective way for a message to be awarded cognitive processing is to violate expectancies. Karmarkar and Tormala (2009) conducted several experiments seeking to find the impact of expectancy violation on persuasion. When strong arguments were used, sources with low expertise were more persuasive when expressing certainty, while high expertise sources were able to be more persuasive when expressing uncertainty. The violations of expectancy nurtured involvement and in turn more favourable attitudes. Importantly, Karmarkar and Tormala (2009) further scrutinize their findings, showing these expectation contraventions do not directly increase persuasion, instead, they increase elaboration. It is, then, the argument quality that is responsible for the persuasion effect.

Persons with a higher need for cognition are also seeking message framing that stimulates thinking and offers more information. An expert message source for instance has been found to be more desirable to those in need for higher cognition. This is because the expert source offers direct experience and acts as a cue that allows more in-depth judgments to be made where the 'expertise' itself can be evaluated (Whitter and Manolis 2015).

To achieve cognitive processing, peripheral processing must be overruled. As exemplified by (Karmarkar and Tormala 2009), peripheral cues stimulated by an expert source often lead people to assume the source will have a biased outlook. If the source expresses some level of uncertainty, the source then becomes more approachable, leading to discussion. Because the message receiver is now activating cognitive processing, the expert source can debate and provide factual information that, thanks to involvement, will not be rejected as pure bias. Brinol, Rucker, and Petty (2015) and Shu and Carlson (2014) address the recognition of a persuasion attempt itself to generate a switch to peripheral processing or outright avoidance. This happening can also be overruled, engaging central processing by directly addressing the concern, resulting in attention and cognitive processing. When a customer is aware that a salesperson is about to try to persuade them, the customer will be thrown off and more likely to engage in cognitive processing if the salesperson starts with a pitch addressing the concern of the would-be customer.

Rational arguments, though requiring more attention, can be used to counter low certainty attitudes, especially those formed through emotional appeals. Ryffel et al. (2014) make example of sensationalized, emotion-based news stories, failing to create powerful attitudes that can resist counter arguments, especially against counter arguments formed with cognitive charge.

2.6.2 BEHAVIOUR

Attitude and behaviour are deeply intertwined. Attitude is the main predictor of behaviour, while in turn behaviour is highly reliable in shaping attitudes, especially when the behaviour is a direct experience with the attitude stimuli (Fazio 1986; Leeuw et al. 2008; UdeU 1965). The easier it is for someone to access an attitude, and the more often the said attitude is recalled, the more predictive it becomes of the following behaviour

(Fazio et al. 1989). The way an attitude is formed and what type of memory it is stored in largely effects the attitudes correlation with behaviour. Attitude change can be presented as a personal, internal process, while the change of behaviour is an external act (Pinson and Roberto 1973).

Attitudes reliant on explicit memory are likely to predict deliberate judgements and behaviours while implicit attitudes are more predictable of spontaneous behaviours (Fishbein and Ajzen 2010; Rydell and McConnell 2006). The function of attitudes and behaviour can occur automatically or purposely. When a person encounters something, quick evaluation takes place, assessing whether there is a strong association between an existing attitude and the stimulus. When a strong association exists, behaviour will be more automatic. If these conditions are not met, the person will then engage in some level of cognitive processing, assessing how the stimuli can best be categorized with existing attitudes. If no link can be identified and the person is motivated and able, then a more careful evaluation will be conducted. Under these conditions, behaviour will be more reasoned and will be moderated by risk assessments, resulting in attitude formation.

Fazio (1986) refers to Wicklund's self-awareness theory, stating '*Under conditions of heightened self-awareness, individuals strive to behave consistently with their internal attitudes*' (p.236). Behaviour is largely influenced by attitude accessibility. When an attitude is often drawn upon, even if it is not strongly held, it will lead to future behaviour, especially under conditions of low elaboration (Petty and Brinol 2015). Because of the mechanics of attitude certainty, as people resist strong attacks, initial attitudes become reinforced and better predictors of behaviour (Tormala and Petty 2002). As mentioned under the Cognition heading, attitudes held with certainty increase the likelihood of intention to persuade others to adopt the attitude (Cheatham and Tormala 2015). Even questioning an attitude can cause a behavioural effect (Fazio 1986; Wood et al. 2014).

The link of behaviour in the form of motor effects, as a response to emotional evaluations, is noteworthy. The concept is that we have both learned and predisposed natural automated behaviours that are synchronized with our emotional state with their expression resulting from attitudinal positioning (Hatfield et al. 1994). When someone that does not like apples is offered an apple-flavoured ice cream, their face will scrunch to some degree displaying disgust and/or disapproval. This behavioural component acts as a social cue after which, in social situations, people will most often subconsciously reject the cue or mimic it to show agreement or approval (Hatfield et al. 1994). The synchrony, or lack thereof, that we engage in are a means of communication and expression, helping us navigate our social environment and interact with one another. Behavioural cues can be very subtle and hard to consciously act out; natural, unaltered motor reactions occur much more quickly than conscious expressions. On this subject, dogs have evolved to notice subtle changes in our expressions, movements and postures even better than humans, noticing desynchronization, it is the trigger resulting in them defending their human companion from a 'bad person' or approving of a human with a tail wag and eye contact. Synchronization can intensify with more of the body becoming in synch as the people engaging with one another come to higher approval or agreement (Hatfield et al. 1994).

Though uncomfortable and often regrettable, attitude and behaviour are not guaranteed to be in synchrony. While this is often due to factors such as attitude accessibility and timing, behaviour may be influenced by more than one attitude alone, being acted upon by hierarchical evaluation. For instance, in being motivated to increase self-esteem and one's ego, people seek to enhance and maintain social identities. A person may have a negative series of attitudes toward the evaluation of a car brand. If their social group endorses the car brand and ownership within the group is a symbol of status or belonging, the attitudes against the car brand may be suppressed. A purchase of the car brand may be made if attitudes toward the group, and one's standing in it, are more

important to the holder than the negative attitudes they hold toward the car brand (Langner, Hennings, and Wiedmann 2013).

2.6.3 EMOTION

Emotions guide attitudes and behaviours. The primary categories of emotion are positive and negative, followed by basic categories such as love, joy, anger and sadness (Hatfield et al. 1994), where all emotions shift on this individually experienced scale. An emotional state includes experiencing moods without a well-defined point such as happiness or sadness, as well as clearly different emotions such as anger, sadness, and pride (Fishbein and Ajzen 2010). The Elaboration Likelihood Model, as well as the Heuristic Model of Persuasion, both conclude the way emotion moderates and or mediates attitude and attitude expression is largely dependent on the degree of elaboration given to a stimulus (Chaiken 1987; Petty and Brinol 2015; Petty and Cacioppo 1986).

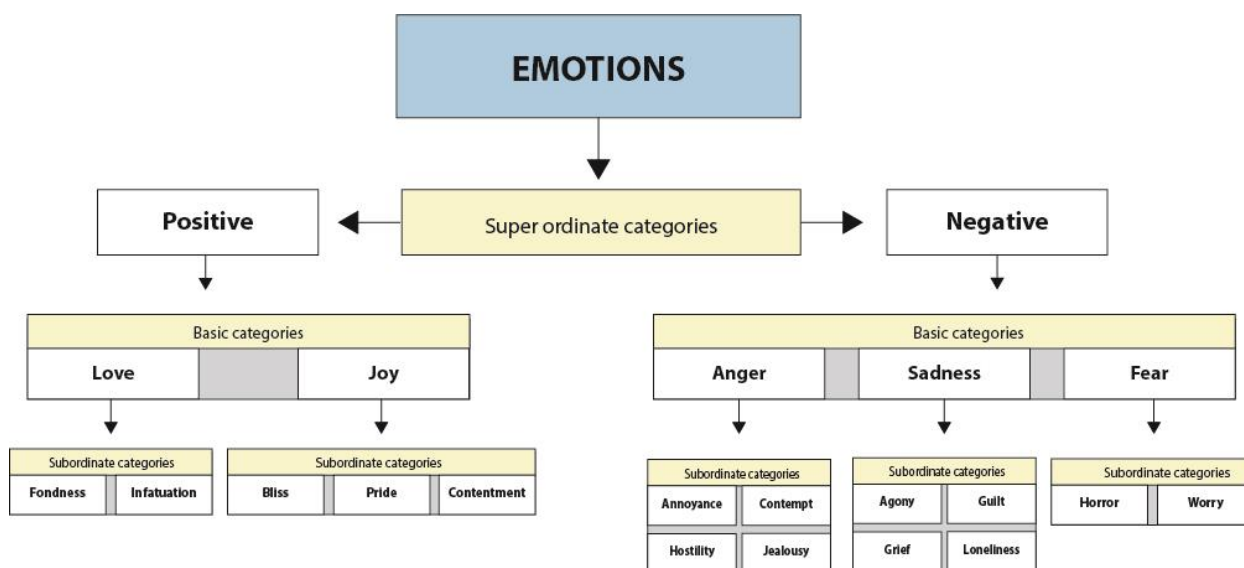


Figure 2.6.1 – Fischer's Emotional Hierarchy

*Fischer's Emotional Hierarchy
(Hatfield et al. 1994)*

Emotions are often used as simple cues, most directly relied on when message processing occurs peripherally due to lack motivation or ability. However, emotions can also be largely influential during cognitive processing (Petty and Brinol 2015). Under this condition, emotions are reflected on and used as arguments. Purchasing a puppy is a high involvement decision. The rational arguments considered during the purchase process include sleepless nights, puppy training and high costs to name a few. These rationalized thoughts, however, can be completely trumped by the emotions brought on by the stare of puppy eyes, bringing even the most rational to their knees with emotional overload. Such an example also illustrates another trait of emotions, that is, emotional response can be overwhelming, impacting the amount of thought processing afforded. The relationship between emotion and thought is dependent on the type of emotion, timing and elaboration processing (Petty and Brinol 2015).

Self-induced emotional evaluation is used as a means to assess attitude, and develop a basis of information in response to a cue (Hasford, Hardesty, and Kidwell 2015). Petty and Brinol (2015) observed the emotional state of anger and its effect on message processing. When anger is felt before someone is exposed to a message, it will likely cause low elaboration, with the recipient relying more on the emotion in the message evaluation process. If anger is generated after central message processing occurs, the emotional state of anger will lead to higher confidence in the thoughts generated toward the message. It is argued that persuasive messages resulting in attitude change are more driven by the receiver's self-generated thoughts, rather than the message content itself (Lu, Lord, and Yoke 2015). An appropriate, emotionally charged, message likely allows for more abstract message retrieval in contrast to cognitive or behavioural communications. As Kahneman (2011) points out, cognitive processing may be engaged with the pure bias goal of justification of emotional cues.

In advertising, the power of emotion is evident as we can develop strong feelings even toward brands we do not use (Heath, Brandt, and Nairn 2006). At first glance this may seem like a counterintuitive notion. However, a strong emotional bond to an advertising message can easily result in favourable action when the conditions are met. For instance, a young couple may have positive emotions toward a baby food brand. Though the couple themselves are not yet purchasers of the brand, once they are with child, the favourable associations may guide their behaviour, especially if these positive emotional associations are stored in implicit memory due to repeat exposure (Rydell and McConnell 2006).

Additionally, the positive emotion may result in the message spread through word of mouth. As the message source is now the couple, to friends they are a far more trustworthy source than the initial advert communicator (Todorov et al. 2002). Emotional appeals with low attention are presented as ideal exposures of campaigns seeking strong brand relationships. Heath et al. (2006) go on to recommend advertising that attempts to communicate important messages such as prices and websites, will benefit from more attention and perhaps, less emotional appeal. Because of our ease of access to information and self-exposure being a most ideal setting (Lu et al. 2015), perhaps all advertising may benefit most from focusing on positive emotional associations with brands. If the organization responsible for the brand has put adequate resources in search engine optimization, most users will easily find critical brand information when searching online.

Reinforcement messages such as those seen in advertisements are not useful when introducing a new brand which consumers have no exposure or easy associations with. Looking at the successful advertising efforts of new and existing brands, (Heath et al. 2006) hypothesized that it is the emotional associations created between the viewer and the brand that drives the relationship. Considering emotional message appeals, Hasford et al. (2015) demonstrate, so long as the emotion is accessible, emotionally charged

persuasion efforts can temporarily affect other present offerings/brands. For example, a fear-charged advert about drink driving at the end of a movie can put the receiver in a bad mood. When the person may normally like to buy their favourite ice cream after a movie, this emotional state can veer them off the purchase decision. Due to basic consequence, affective reasoning appears to be more prominent when reflecting on one's own attitude in contrast to expressing attitudes toward someone else (Hasford et al. 2015). When a persuasion attempt is charged with a message that causes a negative emotional response, the message receiver will most often respond with adaptive coping strategies. When cigarette packages increase health warning label sizes, a smoker may cover the warning or use humour to diminish the negative emotional response created by the original message (Abril, Szczypka, and Emery 2017; Hardcastle et al. 2015).

2.7 MESSAGE FRAMING

The same message said in different ways will be interpreted differently. Mayer and Tormala (2010) note, though taken for granted in general discourse, simply stating '*I feel*' or '*I think*' will result in a difference of how the message is broken down. Scholars concur that most often messages framed matching attitudes will be better suited to creating attitude change. When a message is emotionally charged, it is more likely to influence affectively driven attitudes. The pattern also applies to attitudes with a cognitive basis, which are more likely to be changed when contested by cognitive arguments (Mayer and Tormala 2010). Such process is said to take place due to psychological states boosting involvement which in turn will increase elaboration (Mayer and Tormala 2010; Petty and Cacioppo 1986). In some cases however, Millar and Millar (1990) argue persuasion is more successful when the message has opposite framing. For example, an emotional appeal can be more successful in changing an attitude that was formed with a cognitive basis. This happening is also noted in the work of Banas and Miller (2013) who identified a fact-based inoculation treatment as the most effective means to countering the appeals of

conspiracy theories using illogical, emotionally charged persuasion. This happening can be explained by the novelty of a message with an opposite framing and or mediating variables such as message repetition, number of arguments and cognitive load. Ryffel et al. (2014) clarify that attitudes held with low certainty are more likely to be persuaded by a mismatched message.

Ryffel et al. (2014) also demonstrate that high-certainty attitudes are influenced by matched emotional framing (that is, the persuasion message is emotionally charged and the original attitude has an emotional basis), while rational persuasion equally impacts both cognitive and emotionally based, attitudes held with high certainty. This is likely due to message framing evoking automatic associations while creating selective cue interests (Heath 2001; Mayer and Tormala 2010). Overwhelmingly, charged messages can lose significance and a higher level of influence may come from emotional cues such as source attractiveness or expertise (Todorov et al. 2002). The framing effect is highly influential in all instances concerned with attitude. Evidence from previous studies suggest matching message framing is easier to process, while the ease of process in turn is more likely to lead to higher favourable judgement and feelings (Mayer and Tormala 2010). (Heath 2009) argues that engagement may be more an emotional rather than rational process. Especially in low involvement scenarios such as one-way advertising exposure to a traditional television advert, it is necessary to produce empathetic response to build strong brand relationships. As Kahneman (2011) suggests, the stimulation of favourable systematic processing will lead to biased central processing in favour of generating supporting arguments toward to favoured stimuli. The advantage of appeals with high emotional framing is they require less cognitive attention to process.

Message framing holds an elegant complexity, from evoking our moods, to its remarkable ability to generate thoughts. We can think of message framing as a present. If

a child is given an un-wrapped gift on an ordinary day, they will naturally express excitement and be happy to have received a gift. However, contrast this with the experience of waking to find a jolly fat man in a red suit had eaten the cookies and milk that were left at the windowsill. Next to the empty milk glass and plate of cookie crumbs is a lit evergreen covered in tinsel and decorations, where a bright box lays at its foot, neatly wrapped with a striking red ribbon. The emotional experience created by the framing of Christmas simply generates more cues.

It is necessary for the framing to be appropriate to the given message. Framing may be used as a powerful tool in targeting different audiences, where the same point or cue is communicate differently to suit varying message receiver groups (Mayer and Tormala 2010). The subject of climate control has come under higher level of scrutiny and more opposition in recent years. While regulations applied to slow climate change have had large acceptance, the simple truth of the appeals in favour of climate change is that not everyone cares about water levels in the distant future or other commonly used arguments. This is especially relevant when climate related regulations slow building times, add cost and cause loss of jobs (especially in old industries with environmental implications such as coal mining). Additional segments of the population may be better swayed when framing the message as one of 'anti-pollution' or 'cleanliness'. The same result is achieved; however, the framing of the message would stimulate less resistance as the appeal is targeting different beliefs and attitudes.

Ivanov, Parker, and Pfau 2012 conducted a 4-phase experiment concerned with the workings of message framing in attitude inoculation and the resistance to multiple attacks. The researchers found that attitude inoculation framed with an emotional overlay generated stronger resistance to emotionally charged attacks. Likewise, the same was true for cognition-based messages, providing better resistance to rationally charged attacks. Interestingly, Ivanov et al. (2012) identified this to hold true only for the initial

attack. After being exposed to a second attack, inoculation treatments with a combination of affective and cognitive framing worked just as well as inoculation same framing. Specifically, cognitively based treatments were highly effective against the initial attack, however losing their advantage by the time they were challenged in the second attack. This occurrence may be explained by the findings of Gadiuta (2015), who found a strong inoculation treatment to be highly effective in the short term, but drastically loses its power to the point of being worse than no inoculation over a short period of time. Godbold and Pfau (2000) also highlight the importance of message framing. In their study inoculating young teenagers against alcohol consumption, informational messages were found to perform poorly. Godbold and Pfau (2000) rationalized that this may have occurred due to the information content having inflated participants' perception of their peer's negative behaviour trends, thus being counterintuitive and presenting alcohol consumption as a norm. There is certainly truth in the cliché peer pressure scenario where a negative influence says, 'come on, everyone is doing it'. When framing a message incorrectly, attitude inoculation can have undesirable effects.

2.9 ATTITUDE CATEGORIES

Katz (1960) long ago identified attitudes as being responsible for several primary functions. There are four categories of attitude. Ego-defensive attitudes act as defence mechanisms against undesirable truths. Value-expressive attitudes allow us to communicate values. Attitudes linked to knowledge give us resources to better and more efficiently understand our environment. Utilitarian attitudes serve the function of gaining rewards and avoiding undesirable happenings. In addition to these four categories, and just as importantly, attitudes act as outlines of beliefs. In a social environment, this allows others to form expectations and predictions (Petty & Cacioppo, 1996), allowing us to function socially. It is important to understand, though, that attitudes are not beliefs. While the fundamental attribute of an attitude is an emotive evaluation mechanism, a belief is a

person's linked and retained knowledge toward a stimuli (Fishbein and Ajzen 1975; Petty and Cacioppo 1996). Though beliefs and attitudes are separate systems, they are structures we naturally aim to keep in harmony.

Driven by self-preservation and the desire for belonging and social navigation, people are motivated to hold correct attitudes (Festinger 1950; Petty and Cacioppo 1986). What a 'correct' attitude is, largely depends on social and environmental factors. Holding a negative attitude toward the idea of running in traffic is a straight forward objective position that's wisely universally held. This attitude is driven by the laws of nature, which explain something along the lines of 'standing in front of mass in motion hurts, a lot.' Again, one cannot afford to hold a wrong attitude when potentially including a plant that may be poisonous as an ingredient in their meal. While some attitudes are objective truths in the interest of self-preservation, people also attempt to maintain homogeneous attitudes with their social group in order to maintain structure and avoid conflict (Festinger 1957). Homogeneous attitudes are the fabric of our society and become more specific as grouping shrinks. The need for members of societies, tribes, groups, parties, families and couples, to hold similar attitudes drives our laws, relationships and cultures. The attitudes we hold are greatly influenced by where we are. Though a beef steak is well appreciated in most countries, such an attitude is strongly discouraged in India, where the cow is revered as a sacred animal. A positive attitude toward having multiple sexual partners is highly undesired by societies that practice monogamy, however, positive attitude toward multiple sexual partners is the basis of polyamorous groups. Though the definition of a 'correct' attitude can change depending on the factors discussed, objective measures assessing desirable position can often be made.

People also often desire to change their attitude when they find enough attraction toward a different attitude (Lu et al. 2015). For example, a person feeling consistent depression will be attracted to the value of developing more favourable attitudes about

themselves or their environment. In the same sense, when faced with undeniable evidence, someone holding an incorrect attitude will likely desire change. For example, a cyclist may seek attitude change in favour of wearing a helmet after experiencing a near-miss accident.

Though often uncomfortable, people also experience simultaneously holding conflicting attitudes. This generally occurs when a new attitude is developed which conflicts with an existing belief. Conflicting attitudes may also manifest to match external influence. Opposing attitudes may be 'tagged in' to conform to the desirable virtues as dictated by varying social scenarios (Petty 2006; Rydell and McConnell 2006). This happening can be deconstructed by the Meta Cognitive Model of Attitudes (Petty, 2006). This model portrays attitude manifestation more as evaluative judgments, constructed in the moment, and based on accessibility of information. Driven by differences in moderating factors, an attitude can be enacted in various ways. Such moderators cause strong interference between attitudes and behaviour (Hassan and Michaelidou 2013; Wells 1985).

As attitude certainty is increased, people are more willing to discuss the attitude while also feeling more motivation to attempt to persuade others into adopting the said attitude (Tormala 2016). Strongly held attitudes are generally more stable and less likely to change, while weak attitudes are less accessible and more vulnerable to context influences (Bohner and Dickel 2011; Fazio et al. 1989). The likelihood of an attitude being acted out lays largely upon on how easily a person can access an attitude from memory. The same availability of accessibility is also responsible for the consistency between attitudes and behaviour (Fazio et al. 1989). As attitudes can have many triggers, including emotional cues; it is important to note that an increase in trigger cues will likely lead to an increase in attitudinal associations toward the stimuli, as there are more points of scrutiny. In the world of advertising, Red Bull have performed magnificently in linking favourable

cues with their brand. While Coca-Cola long ago claimed Santa Claus, and Pepsi aligned itself with pop stars for decades, the Red-Bull energy drink has associated itself with Felix Baumgartner, who makes BASE jumps from the edge of space, and Red-Bull has become a strong sponsor of high energy and extreme athletes. Cues such as these may not be easily recallable, but they certainly are recognizable. Modern research thus recommends memory testing to examine recognition rates rather than recall (Heath and Nairn 2005).

People generally have a compelling desire for justification of a held attitude. This quality weakens as the perceived importance of the attitude lowers (Angell et al. 2016; Sloman and Sloman 1996). Though personal, the attitudes we hold often have social consequences. A more positive and stronger public attitude toward condom use for example, results in less spread of sexually transmitted disease. In a more extreme situation, the personal attitudes of Captain Chesley B Sullenberger, “Sully,” led to his quick decisive action on January 15th, 2009, performing an emergency landing onto the Hudson river. Captain Sully directly saved the lives of 155 people on-board while also avoiding crashing the plane into the busy New York City area (Anon 2016). Consequences of attitudes are self-evident, as people’s daily behaviour has a direct impact on their health and well-being as well as influence over that of others (Fishbein and Ajzen 2010). Once an attitude is formed, additional new attitudes can quickly take shape as associations are made. Once someone enjoys their first delicious vanilla milkshake, future associations with vanilla flavouring can easily be made. Such foundation assessments are conducted by any new catalyst. These associations are made due to our limited processing capability. We as people, are simply limited by our cognitive processing resources, most often turning to simple cues for our basic attitude formation. McGuire (1961), referring to this limitation as ‘the lazy organism’, goes on to explain that humans have trouble with processing multiple details of our environment and interactions. For such reason, to explain attitude formation

and attitude change, two attitude formation processes have been established: the central and peripheral routes.

2.8 ASSOCIATIONS

When processing a communication message, we rely on assessment based on existing attitudes, beliefs, and knowledge. Associations are learned through exposure to pairings. Even though the beach gets plenty of rain, gloomy days and even snowfall, the most common association we have with the beach is sunshine. This is because people expose themselves to the beach more when the weather is hot, and the sun is out. By frequently pairing a liked stimulus with a less liked stimulus, attitudes toward the less liked stimuli can result in some positive shift. This phenomenon is known as 'evaluative conditioning' (Bohner and Dickel 2011). This conditioning method is commonly used by parties interested in persuasion. Under a marketing context, it is an especially frequent method in positive promotion of neutral offerings with little difference between brands, such as milk or toilet paper. This is done to offset the basic nature of the product and increase the image appeal. Even when meaning is not straightforward, the associations we create, such as the colour blue with the Pepsi brand, or red with Coca-Cola, are powerful anchors aiding message framing (Heath 2001). Anchor appeals must also be framed appropriately as association does not mean likeness. Petty (2006) gives the example of bread being associated with butter not meaning that bread is butter.

Although people will use anchors in their attitude formation, the relationship of the stimuli and anchor point is also likely to be evaluated. When considering a new message, a biased memory search takes place, seeking anchoring from accessible beliefs, knowledge and attitudes (Ahluwalia 2000; Kahneman 2011; Mahaffey and Bryan 2016; Petty and Cacioppo 1986). This process has been termed 'biased assimilation.' Ajzen (2005) refers to Fazio's MODE model (Motivation and Opportunity as Determinants of the

Attitude-Behaviour Relationship) which places strongly held attitudes as a biased reference point for judgement of attitude relevant information. Processing the same message can be interpreted differently by people with polarized attitudes on the subject. New statistics on violent crime rates with the use of knives as the primary weapon, may be used as information supportive of gun ownership. Likewise, the same statistic can be interpreted as supportive information toward a negative attitude toward gun ownership. When there is little to no direct association to be made with a new exposure, we simply revert to more obscure reasoning, simplifying judgement simply by the primitive standard of pleasure and pain (Chaiken 1987; Petty et al. 2004). If the message is counter-attitudinal and or the receiver holds their existing attitude with certainty, a defensive positioning will be triggered (Karmarkar and Tormala 2009; Lemanski and Lee 2012; Tormala 2016).

Bias-assimilation does have limitations. When an argument is hard to counter, the message receiver may experience one of several things. First, the process of attitude change may begin. However, If the message receiver is motivated to maintain their existing position, even when facing irrefutable information, the message receiver may begin relative weighing. Relative weighing is a process which attempts to minimize the overall impact of the attributes generated by the argument (Ahluwalia 2000). An example of this is a committed person who loves their spouse finding their partner is cheating on them. Rather than ending the relationship, they may instead discount the event, and create justification for their partner's promiscuous behaviour.

When the attack is weak, the receiver will justify rejection of the argument. The Elaboration Likelihood Model of Persuasion illustrates (Petty and Cacioppo 1986); if there is little to no motivation or ability to process a message, or if the cognitive processing leads to neutral or no response, or the message does not overcome previously held information, peripheral message processing takes place. Because most advertising is processed

peripherally and this system is highly driven by emotion and basic cues, communicators attempting persuasion must be mindful of simple association cues that can influence the message. A source that appears to be trustworthy for instance, often leads to more positive attitudes. The same is true for a source that appears to have expertise, however, not more so when compared to a trusted source. A message is more likely to be accepted when coming from a trusted source, regardless of their level of expertise (Lemanski and Lee 2012).

When considering advertising, traditional analysis of success focused on the attention given to an advertisement. (Heath 2009) argues at least in the case of some mediums such as television, the real indicator of success is not always attention and tout's high engagement as a more reliable measure.

2.10 ATTITUDE MEASURES

Attitudes are a hypothetical construct which cannot be directly observed. Though the nature of attitudes is defined as evaluative dispositions, attitudes cannot be touched, seen, tasted or otherwise observed directly, they can, however, certainly be measured (Ajzen 2005). The act of measuring attitudes provides us with a means to assess attitudinal positions of groups and individuals and offers the best source of predicting behaviours. Measurement of attitudes is managed through verbal or nonverbal means and can be categorized and scrutinized by the attitudinal components described in Section 2.6 (cognitive, emotional, and behavioural). Attitudes can be self-reported as well as indirectly observed or assessed through associative indicators to the likes of involuntary bodily responses such as facial EMG, where contractions of major facial muscles are measured, pupillary response, which is the process of pupil dilation in response to favourable or unfavourable observation and galvanic skin reflex which offers a window into the state of

emotional intensity through measurement of electricity traveling through skin and sweat (Petty and Cacioppo 1996).

Methods such as Implicit Association Testing, where subjects have limited control in providing answers, usually as a result of urgent response time requirements may also be used (Ajzen 2005). As the method name suggests, Implicit Association Testing is designed to unveil attitudes that are held implicitly where the subject may or may not have direct awareness of their attitude or perhaps hold conflicting attitudes, or perhaps simply not be comfortable sharing their attitude directly. Petty and Cacioppo (1996) note that direct measures of attitude are more often found to have higher reliability and validity in contrast to indirect procedures while also offering higher precision and sensitivity rates in terms of uncovering smaller differences in attitudes.

Response category			
Response Mode	Cognition	Affect	Conation
Verbal	Expressions of beliefs about attitude object	Expressions of feelings toward attitude object	Expressions of behavioural intentions
Nonverbal	Perceptual reactions to attitude object	Physiological reactions to attitude object	Overt behaviours with respect to attitude object

Table 2.10.1 – Responses to infer attitudes

*Responses to infer attitudes
(Ajzen 2005)*

One of the most common ways of measuring self-reported attitudes is through semantic differential. Semantic differential was developed by Charles Osgood and his associates in 1957. When employing this strategy, people are usually asked to rate the attitude object on a seven-point adjective scale built with bipolar adjectives such as like and dislike or good and bad (Fishbein and Ajzen 2010). Similarly, belief-based measures are also a common standard. Today, the Likert scale is most used, where on a scale (usually five to seven points), people are asked if they agree or disagree with a statement. The statement in question is often part of a larger number of statements which are highly correlated. This is used to determine underlying attitudes with a high degree of confidence. Likert scales give respondents more scope for expression and are easily understood (Field and Hole 2003). To evaluate attitude toward something particular, fear of flying for example, people may be asked to agree or disagree with several correlated statements such as 'The safety of airplanes has improved over the last decade', 'Flying is the safest form of travel', and 'I enjoy flying more than other forms of transportation'. Through various methods as detailed in Chapter Six, correlations and results of different factors can be measured to uncover a target attitude position.

As mentioned throughout this work, attitudes are one of the most reliable ways to predict behaviour. Though there are additional factors such as enabling conditions and circumstance also at play, behaviour too is, in turn, a favored method for unveiling attitudes (Fishbein and Ajzen 2010; Wells 1985). The relationship between an attitude and behaviour is most accurately predicted when testing of attitude is conducted on the intended action, target, context, and time. Behavioural indicators of attitudes as explained by Petty and Cacioppo (1996) can be observed with consistency. Behavioural tells include observations such as seeing people in agreeance with a heard message move their head vertically more frequently. Petty and Cacioppo (1996) go on to speak of researchers interested in interpersonal attraction using measures such as amount of eye contact, body

positions and physical distance between the two participants to determine favourable attitudes.

The human brain gives off a very subtle amount of electricity when neurons are engaged (Beatty et al. 2015). On their own, the trace amount is far too low to measure. However, using a non-intrusive device that sits on the scalp, when a group of neurons is active, a measure becomes possible. Such measures were first conducted in the 1920's by Hans Berger who measured the voltage, current and resistance given off by the brain in different situations. While other methods of measuring signals from the brain exist and have different advantages, the most popular non-intrusive method has come to be known as electroencephalography, or EEG (Imotions 2018). When multiple measures are used, combining direct and indirect observations, researchers can feel confidence in having determined an attitude. Measurement methods specifically used in this research are detailed and discussed further in Chapter Six: Research Methods.

2.11 ATTITUDES SUMMARIZED

Although attitudes are simple enough to explain, the concept is very rich and complex, and thus difficult to conceptualize. When reflecting on past research, at first it appears that there are some odd contradictions, however, a deeper look shows that such different findings are the result of the workings of attitudes, where a great amount of moderation and mediation occurs. There are not only environmental factors to consider, but also a great amount of cultural and individual differences to consider including but not limited to factors such as masculinity/femininity, attention span and interest.

Although central and peripheral processing are unique systems, the two are often used in unison. At the core, both systems are there to help us meet our basic goals, gain pleasure, avoid pain. Should the systems be illustrated, Kahneman (2011) leaves us to imagine a helix somewhat similar to how a DNA strain double helix is drawn. The below

diagram (2.11.1) is an example of how a common attitude formation may take place. We can imagine the scenario of purchasing a pair of shoes. The initial peripheral cue guided perhaps being the attraction to the colour of the shoes. Central processing then kicks in after the price of the shoes is seen, reasoning the possibility of purchase. The second dip into peripheral process may in this case be readily available prior brand knowledge, with the second swing into central processing being a calculation of social implications because of the purchase. The third time peripheral processing occurs may be once having tried the shoes on and feeling the comfort of the new cushion technology, then once again turning to central processing when thinking of how to dispose of the old shoes once the purchase is made. The examples are very subjective, with infinite variance in processing guided by the stages of the ELM discussed in this chapter, though processing can be absolute, central or peripheral, most often attitudes will be guided by a combination of the two systems.

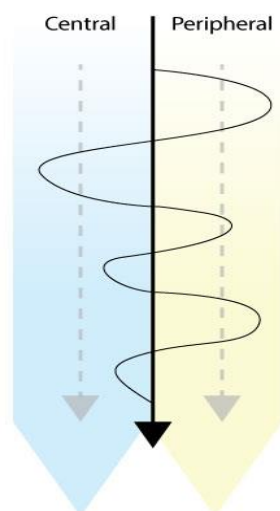


Diagram 2.11.1 – Processing in response to thought or stimulus

Example of message processing in response to thought or stimulus

The core of what attitudes are is relatively simple, as previously summarized in a short sentence attitudes are an evaluation toward a thought or stimulus (Bohner and Dickel 2011; Petty and Cacioppo 1986). The functional processes however, mediated and moderated by environments, time and individuals are infinite, adding great situational uniqueness and resulting in the need for case by case analysis. At times, there is a one-size-fits-most answer, while in other situations, attitudes are as unique as flakes of snow falling in the winters sky.

2.12 ATTITUDE MANIPULATION TECHNIQUES

Our social nature and order are based on shared attitudes, beliefs and behaviours. While we naturally prefer to maintain favourable attitudes, social groups and organizations constantly attempt to shift our attitudes to favouring their views and offerings or particular attitudes that are beneficial to them. From religious organizations preaching a specific faith, to advertisers attempting to make us brand loyal, parents influencing our values and governments insisting on rules, attitude manipulation is all around us. Attitude manipulation is different to natural attitudinal change, as the party attempting to change our attitude will benefit from our doing so. A church will gain a member, a brand may earn income, while parents will feel gratification and governments will maintain political power. There are several established approaches to this which will be detailed, those being message learning, classic conditioning, judgement approach, attributional theories, combinatory approaches, self-persuasion and motivational approaches (Petty and Cacioppo 1996).

Message learning occurs when new information overpowers an initial attitude. For this overpowering to occur, attention toward the information must first occur, followed by incentive to digest the new information. As this new information is rehearsed, it becomes the default stance. The key component of message learning is that the new information is

remembered (Petty and Cacioppo 1996). Classic conditioning happens when one stimulus becomes associated with another. Staats and Staats (1958) established that as frequency pairing of stimulus is heightened, an eventuation of shared reaction will be reached. Such pairings are often seen in marketing and presented to establish a desired negative or positive reaction, often toward an otherwise neutral offering. Conditioned associations are especially evident when looking at advertisers of otherwise very neutral products such as toilet paper. The focus on an extremely cute puppy in Purex's 90's advertisements of their toilet paper, for example, was included to associate the idea of softness with the brand.

The basis of judgmental approaches lays in comparisons of new information being made to an existing point by an individual. Incoming information is placed in some sort of ordering such as size, likeness, attractiveness, or any scale as made sense of by the message receiver. Based on the order given, judgement is then made, assessing the most appealing option through contrast and assimilation with an existing position known as an anchor. Petty and Cacioppo (1996) present attitudes as powerful anchors, where 'opinions and attitudes expressed by others may be displaced either toward or away from one's own position' (p99). When someone is picking between two flavours of ice cream they are unfamiliar with, they will attempt to judge their options by comparing their attributes to a flavour they are familiar with, perhaps placing colour or textures of the available ice cream flavours on a scale comparing these qualities to a liked flavour they are familiar with. Harry Helson's Adaption Level Theory is perhaps the most well-known judgement theory. From an economic application, Helson's theory shines light onto why money does not buy happiness (Edwards 2018). If someone wins a lottery, though they will have a spike in happiness after the event, their happiness level will return to a baseline as the level of happiness otherwise experienced in minor and more common events lessens.

Motivational approaches to attitude change count on a reaction. Humour for example, may be used by an otherwise bland politician to sway undecided voters (Capelli,

Sabadie, and Trendel 2012). Meanwhile, advertisers may rely on empathetic appeals in attempt to make the message receiver feel as if the events presented were happening to them (Shen 2011), a strategy often used in advertisements for charities. When we think of motivation, positive framing often comes to mind. However, one of the most common motivational methods used in advertising is fear. Fear appeals are popular because people will be inclined to respond in a way that will most likely grant them positive rewards while seeking to avoid negative consequences (Kenzie 2008). Fear is a very primitive human response which advertisers generally tap into to reach greater audiences. Despite fear being a primitive response however, fear is far from basic. In reality, the level of fear an individual experiences varies depending on the stimulus, such as product type in a marketing environment (Cochrane and Quester 2005; Morales, Wu, and Fitzsimons 2012). Fear levels are also varied between cultures, again moderated by the message (Laroche et al. 2001).

For fear appeals to be highly successful, at least a moderate amount of fear must be generated and sustained over repeat exposures, as fear is most effective when it used on a regular basis (Capelli et al. 2012; Strong and Dubas 1993). In general, fear appeals need to offer audiences some sort of relief after the exposure to fear. Rossiter and Thornton (2004) showed that heavy repetition of fear inducing advertising works because the shock of the advert becomes anticipated, the anticipation itself works as a relief system. Relief may come in the form of time, humour or even reactions like disgust (Morales et al. 2012; Mukherjee and Dubé 2012). While correct application of fear appeals will certainly produce the desired outcome, incorrect application is likely to backfire, even producing adverse effects to those intended. In the same research, Rossiter and Thornton (2004) found that without heavy repetition, fearful advertising targeting speeding had the effect of increasing speed choice after initial exposure in young drivers. A decrease in speeding intent was only present after heavy repeat exposure.

Whether the goal is attitudinal maintenance or influence, encouragement supporting a favourable dictated premise accompanying the basis of an attitude is known to in turn manipulate attitude strength. Luttrell et al. (2016) demonstrate this by presenting participants with a scenario. The participant's attitudes were then recorded. A follow up session giving false feedback to these reported attitudes then took place with the premise that these attitudes were seen as being high in morality. A significant difference was found between the control and the false feedback group, with attitude strength shown to have increased solely based on the premise that the attitudes were seen as grounded in morality. Motivational approaches are largely dependent on correct message framing as dictated by the variables present in the opportunity for interactions, the target of persuasion and the nature of the message source. Unless confident in one's understanding of message delivery conditions and the likely target audience reaction, mixing the framing of appeals, such as combining fear and humour within one message will likely yield desirable results (Brooker 1981; Morales et al. 2012; Mukherjee and Dubé 2012).

2.12.1 SELF DRIVEN CHANGE

When people experience sufficient motivation to change their own attitudes or behaviours without influence from outside communications, self-persuasion takes place (Richards and Banas 2015). Self-persuasion can be used to develop and maintain desirable attitudes. This strategy relies on two manipulation methods (Lu et al. 2015). First, people can change positive or negative attitudes toward associations. Someone that wants to hold a positive attitude toward the purchase of a motorbike may stimulate this attitudinal shift by nurturing more positive attitudes toward motorcycle safety gear. Secondly, the person may avoid acquisition or processing of undesired associations. For instance, in the case of holding a positive attitude toward a motorbike purchase, crash statistics and mortality rates may simply be ignored or somehow disassociated.

Self-persuasion also allows for self-control, which is dubbed as a person's ability to alter or overwrite innate responses bringing them in line with social expectations in order to pursue long-term goals (Baumeister et al. 2007). The practice of self-control is a deliberate, conscious process that is limited by cognitive resources. As we attempt to maintain logical consistency in our attitudes, exposure to a message may trigger self-induced 'Socratic' processing. This is when questions are asked on logically related issues, resulting in addressing inconsistencies. A weakness of the 'Socratic' self-persuasion method, is that the effect is generally only produced by the first assessment of opinions (McGuire 1960).

Literature concerned with analysis and control of one's cognitive processes has had a firm footing in attributional theory (Tormala and Petty 2002). Attributional approaches give reason to observations. For example, when it seems as an obvious reason explains a behaviour, people will confidently attribute the said behaviour to the cause (Petty and Cacioppo 1996). According to scholars, the common feature of attributional approaches is that attitude change depends in part on the attributes people make about the behaviours they observe, in others and even in themselves. The same observation with different attribution, even from the same observing individual, can stimulate varying attitude change.

2.13 COMMON RESISTANCE TO ATTITUDE CHANGE TECHNIQUES

Resistance to attitude change may be voluntary or automated and largely depends on the conceptualization of an attitude, the attitudinal position as well as the ability of foreseeing attack. When people are triggered by an attitude against a stimulus, their attitude will be more resistant to persuasion, while when an attitude is favourable, they are more susceptible to persuasion (Ahluwalia 2000; Bizer and Petty 2005; Kelly and Garcia 2009). Negative information has been shown to reliably produce a larger impact on attitude

formation, in contrast to positive information. This is largely due to negative messages generally being more demanding of processing by message receivers (Dibbets et al. 2012). For a real-world scenario, we may look at politics and general elections. Victory is not only a result of favourable attitudes toward the winning candidate, but also a result of unfavourable attitudes toward their opponents. Looking at the heated 2016 American Presidential election, rather than Democrats attempting to sway all potential voters, efforts targeting persuasion of pro-Trump supporters would have likely been more meaningful than attempting to sway anti-Clinton voters. When someone is especially invested in maintaining a particular attitude, the processing of an argument will be more biased. Ahluwalia (2000) attributes this happening due to the subject being defence-motivated rather than accuracy-motivated. As previously discussed (2.8, “Associations”), both a negatively positioned attitude and an attitude held with certainty will encourage a defensive positioning (Karmarkar and Tormala 2009; Tormala 2016).

Known as ‘defence by avoidance,’ the strategy of avoiding a scenario or information that contradicts a belief is perhaps the easiest to apply (McGuire and Papageorgis 1961). It is also a strategy that we innately attempt to employ when having the ability. Under the right conditions, defence by avoidance does work, and may even be the best defence strategy (McGuire and Papageorgis 1961). Humankind is moving into an era that offers more freedoms, options and luxuries than ever before. New technologies and systems enable us to choose to partake in more self-selected, supportive exposures (Gvirsman 2014).

Despite this, defence by avoidance is seldom a practical attitude defence strategy. One would have to constantly avoid persons or social interactions that do not endorse similar attitudes. Yet, even more difficult, is avoidance of contrary environmental cues that may create undesirable evaluation towards attitudes. The avoidance strategy and its shortcomings can be demonstrated with a reflection of most countries under totalitarian-

like regimes. Though borders are tightly closed and regulated, in these times, external stimuli still seep through, sparking enough interest and challenge to attitudes that revolutions against the rulers eventuate. Defence by avoidance is especially weak under marketing conditions, where advertising from competing brands is unapologetically, constantly, bombarding consumers with information promoting alternative offerings as well as negative targeting competition.

Strongly held beliefs that are not often challenged are most likely to collapsed under high forced exposure situations (McGuire and Papageorgis 1961). This is mostly due to confidence in an unchallenged attitude having been built to such a high point that the subject is not motivated to consider counter attitudinal attacks. In such cases, people are simply not ready for unavoidable scrutiny. In real world conditions, especially in modern times where we are tied to information devices for the majority of our day, a simple meme that we may automatically process can be enough to challenge an attitude (Mazambani et al. 2015; McGuire 1961). We simply cannot put our heads in the sand and avoid conflicting information.

Another popular resistance technique is the supportive approach. Supportive therapy works primarily through positive reinforcement toward sustaining of an attitude or belief. Supportive therapy is indeed established as an effective, reasonable means to increase resistance to attitude change, though similar to defence by avoidance in effectiveness, making people feel good about their positions, supportive therapy is limited in its ability to maintain positivity and protect people during an unforeseen attack (Petty and Cacioppo 1996).

Two way, or two-sided messages are messages that offer both negative and positive information. Two way and comparative messages have become very popular advertising message techniques. In a marketing context, a brand will not only tout its

strength, but also a weakness. A sports car company would fare well in poking fun at the low gas mileage the car offers, then turn the attention to the power, performance, and styling of the vehicle. When a weakness like this is self-addressed, it is less likely that a competitor will have as much impact attacking the point, especially when you have provided a counterargument. Such messages are assessed as being more credible and are more likely to hold and capture attention (Kelly and Garcia 2009). Two way and comparative advertising are further discussed in Chapter Four.

2.14 ATTITUDE INOCULATION

Inspired by the workings of two-way messages and puzzled by the aftermath of the Korean war, where some captured, and brainwashed, soldiers' attitudes toward their home country became less favourable than their new-found attitude toward the enemy's values and lifestyle, William McGuire (1961), went on to develop the theory of attitude inoculation. In practice, attitude inoculation works through the same mechanism as medical vaccination. In a medical setting, inoculation exposes the subject to a lower, weaker version or strain of a virus (Lombard, Pastoret, and Moulin 2007). This exposure allows for antibodies to react accordingly, however because the virus is already weakened, it is unable to over-run the patient's defence system. The subject's antibodies will destroy the attacking virus and be left better prepared for dealing with stronger versions of the virus. This preparation may sometimes even help in countering other virus strains, similar to the original virus (Lombard et al. 2007). Rather than a virus, attitude inoculation exposes a person to a contrary argument. Unlike supportive therapy, through attitude inoculation a person is shown that indeed counterarguments to an existing – or even anticipated – anti-attitude attack does exist. This inoculation exposure will not be presented in a way through which the new information may be seen as superior to the original attitude, it is enough to evoke the perception of threat, acting as a motivational trigger for subjects to realize they need to defend their related attitudes (Lin 2005; Pfau et al. 2003).

In many studies, the effectiveness of attitude inoculation has been tested against other resistance strategies, most often contrasted against supportive treatments (Banas and Rains 2010). Scholars and practitioners have come to an objective consensus that attitude inoculation is indeed an effective, often superior, technique in developing resistance to attitude change (Matusitz and Breen 2013; Niederdeppe, Gollust, and Barry 2014; Pfau et al. 2003). A strength of attitude inoculation is that the treatment can be pre-emptive, increasing resistance to attitude change prior to an exposure (Banas and Miller 2013). The inner working of attitude inoculation was first thought of consisting of two happenings; forewarning and refutation motivation, producing threat and motivating the counter arguing process (Compton and Ivanov 2012). Banas and Richards (2017) recently unveiled the threat identification component of attitude inoculation to originate not only from a sense of danger, but also rather an identification of a challenge; meaning the inoculated subject is motivated, rather than simply threatened by a fear of change.

In being exposed to attitude inoculation, people develop the ability to create more robust future defences. This leaves inoculated subjects better prepared against subsequent attacks, even in the face of new counter-arguments they have not yet faced (McGuire and Papageorgis 1961). As mentioned, technological advances and general growth in living standards are allowing us to consume more favourable media while also selectively exposing ourselves to more environments that provide less challenge to existing attitudes. Interestingly, looking at news media consumption, Gvirsman (2014) found that people who selectively view biased media, do not avoid media with challenging views. Because, in truth, completely avoiding opposing media is likely impossible, this behaviour strongly hints at a natural self-inoculation. A more drastic example of this is seen in Amish communities and culture. The Amish people are traditionalist Christians who famously reject modern lifestyles and technology. Though the Amish live in their own close-knit communities, the Amish do not pretend the outside world does not exist. Though

they exposed themselves to the outside world, conducting business and making use of public resources such as roads, they chose to maintain their way of living (Berg 2012). This familiarity and knowledge are an inoculation against the outside world, allowing many of them to resist temptations to change from their ways.

The likelihood of successful attitude inoculation is dependent on application aspects such as inoculation message strength and message timing. Personal factors must also be considered. These may include the likes of attitude accessibility, inoculation message framing or respondent participation (Gadiuta 2015; Pfau et al. 2003). As discussed further in this section, the effects of attitude inoculation will be dependent on the inoculation message argument strength, while moderated by many additional external factors such as those discussed in Chapter Three. The attitude inoculation strategy is said to be most effective when subjects practice defence through participation. The success of inoculation again increases when the involvement of participants increases (Lin 2005). In such forms of cooperative inoculation treatment, the target subject and the source would work together in producing refutable counter arguments toward their attitudinal position. The added success of participation as explained by Oh and Sundar (2015) is prompted by an enhancement of message elaboration.

Reflecting on their own research, Banas and Miller (2013) remain impressed by the potential of attitude inoculation. Though their inoculation treatment consisting of only one page of text, it was able to provide resistance to a 40-minute movie clip consisting of an array of captivation methods using tools such as narration, music and imagery. Though most studies have tested attitude inoculation under supportive framing, with the goal being the testing of the treatments ability to bolster pre-existing attitudes Ivanov et al. (2017) found attitude inoculation treatment as also being a useful strategy in gaining favourability from persons that hold natural and opposing attitudes. Not only did participants that received the inoculation treatment experience an attitudinal shift in the direction advocated

in the inoculation message, but also these participants' newly shifted attitudinal position was more robust than that of a control group.

The reach potential of attitude inoculation treatment is proving to be significant. Richards and Banas (2015) even found attitude inoculation to be an effective means to reducing the impact of subsequent, internal, self-persuasive communications. The study they conducted revolved around a brochure that communicated the health risks caused by binge drinking. Prior to seeing the brochure, one group received an inoculation treatment stating that because of reading the booklet, they may feel a threat to their freedom. The inoculation treatment also consisted of a counterargument, explaining freedoms would not be challenged and thus readers should not feel threatened. The subjects forewarned of potential psychological reactance through the inoculation treatment indeed experienced less threat to freedom. As a result, the inoculated group showed lower intent to drink alcohol after having read the booklet.

Banas and Miller (2013) also provided the first verified instance of attitude inoculation being used in providing some resistance to counter arguments also using inoculation treatment. That is, attitude inoculation itself can be used as a tool to resist counter attitude inoculation. In fact, despite the somewhat limited literature, attitude inoculation thus far appears to be the most superior resistance strategy, outperforming supportive therapy, fear appeals, and other strategies aiming to increase resistance to attitude change (Banas and Rains 2010; Bither, Dolich, and Nell 1971; Ivanov et al. 2017; McGuire and Papageorgis 1961).

There are several earlier works about attitude inoculation theory that present conflicting findings, casting some challenge to the theory. While indeed the story of attitude

inoculation is not yet entirely told, many studies with null results consist of dubious application of inoculation. For examples, testing attitudes on the topic of abortion, Benoit (1991) concluded inoculation is a less effective means to create resistance to attitude change toward controversial topics in contrast to supportive arguments. This was due to participants not being motivated to produce more counterarguments in response to an attacking message. The study falls short, however, when we see that the attack was given directly after the inoculation treatment, with no further re-testing. Also, as with many older studies of attitude inoculation, no measure of the inoculation treatment message strength was made. As Tormala and Petty (2002) warn, when persuasive message strength is poorly applied, results may differ to the desired outcome of the persuaders.

The message framing component of the inoculation process is an area generally agreed on by inoculation scholars (Ivanov, Pfau, and Parker 2009; Mayer and Tormala 2010), who report matching framing to the formation of the attitude produces better results than a mismatch. That is, cognitive framed inoculation messages are best used to maintain attitudes that were formed through cognitive means while affective framed inoculation treatments are better in bolstering existing attitude formed through an emotional base. However, in looking at general attitude change, Millar and Millar (1990) found at times, the opposite to be true. This finding suggesting cognitive appeals are sometimes better suited in manipulation of emotionally built attitudes and vice versa. The reason for this may be novelty, where a novel message and message delivery is more interesting to message receivers.

Recent studies appear to produce more consistent findings supporting the positive effectiveness of attitude inoculation (Becker 2017; Godbold and Pfau 2000; Lim and Ki 2007). While inoculation is undoubtedly effective and has even been referred to as the grandparent theory of resistance to attitude change (Ivanov, Miller, et al. 2012), there are still many questions surrounding our understanding of attitude inoculation and

circumstances for its correct application under various real world conditions (Banas and Rains 2010). An increase in literature addressing more of the unknown inner workings of inoculation and particular applications of inoculation such as those found in this thesis experiments will likely eventuate along with the increase practical use of attitude inoculation. In turn, academic findings and real-world applications this will provide case studies and more real-world applications for scholars and practitioners to research.

2.15 MESSAGE STRENGTH

The strength of the communication message must be considered in all practices concerned with attitude change and or resistance to attitude change. As previously discussed, message strength has multiple effects on how, and even if, a message is encoded. Inoculation literature includes many scholars having argued there are other components at work that aid in driving the process of inoculation. Pfau et al. (2003), for example, found attitude accessibility and attitude strength to be key components directing the success of attitude inoculation. Witnessing high intensity and low intensity refutational pre-treatments being more effective than moderately intense messages, Burgoon and King (1974) challenged researchers of attitude inoculation to investigate the results of language intensity used in future studies. This challenge has still not been widely embraced by researchers and practitioners of inoculation.

After inoculating teenagers against alcohol consumption through using public service advertisements, Godbold and Pfau (2000) found those who were exposed immediately to an attack fared better than those that had delayed exposure. The results produced by the research of Godbold and Pfau (2000), though, showing inoculation to be successful, does not take into account the moderation element of inoculation argument strength. In their research, and most other attitude inoculation studies to date, there is no pre-testing conducted in identifying the general level of perceived inoculation argument

strength. In my previous work (Gadiuta 2015), I uncovered the importance of attitude inoculation treatment message strength, and the different outcomes the message strength can have on the success type of the treatment. Banas and Miller (2013), although not directly testing the moderation properties of message strength, have shown that differences in inoculation message framing indeed produce different results with a varying in the effectiveness of the treatment. In their study, it was found that an inoculation treatment using factual information was a superior strategy to methodical and logic-based arguments.

Misjudging the strength of attitude inoculation treatments can lead to undesirable consequences where an ill-applied treatment attempt instead manifests as supportive persuasion against the intended message (Compton 2016a). Such misuse of attitude inoculation likely occurs when inoculation is not thoughtfully applied, that is when those using the strategy do not understand its inner workings, bringing alert to the need for additional research on the topic of inoculation leading to more general understanding. In 2018, a controversial narcotics education pamphlet was given to students at Auckland's (New Zealand) Massey High School (Lynn and Bateman 2018).

It is unclear whether the publishers and writers of the booklet attempted to apply attitude inoculation as their strategy in discouraging drug use, or if the methodology was simply coincidental. Regardless, the result was a backlash from parents, students and the general public. Many were left alarmed at the in-depth detail of how to evade detection or higher punishment when using A class drugs, how to best consume drugs, and even how to maximize the effectiveness of a high from said drugs. Massey High School and the creators of the pamphlet, drugfree.org, defended the pamphlet stating information included in the pamphlet was 'taken out of context', and that the pamphlet was 'targeting current methamphetamine users'. While it is reasonable to assume there was genuine good intent behind the pamphlet, this case stands as a good example of attitude inoculation being

incorrectly applied, knowingly or not, resulting in an undesirable outcome of the campaign. Evidently, the nature of the content was felt by many as 'overly strong' detail, and some seeing it so strong, that an 'overdose of inoculation' had occurred, rejecting the inoculation effort. Such negative reaction could have been avoided if the detail of the information was pre-pre tested on a closed group, with adjustment made to the content to correctly fit the purpose of the pamphlet being a drug-education guide, and not perceived to be or used as a drug 'how to' guide. Instead of the booklet acting as inoculation against drug use, the effect was inverted, more likely resulting in an inoculation for maintaining positive attitudes toward drug use.

The framing of messages as discussed previously is dependent on external situations driven by various conditions. To increase the effectiveness of attitude inoculation, pretesting of environmental circumstance would be greatly beneficial to practitioners in order to ensure appropriate framing and message strength. The following section documents and discusses the impact of message strength further.

2.15.1 STRONG ARGUMENTS

Early testing of attitude inoculation such as that of Burgoon and Chase (1973) identified stronger inoculation argument messages to be more successful than moderate or weaker arguments. However, there are situations where a strong argument may be rejected. When a strong message is rejected, it can lead to outright abandonment with the receiver no longer processing information or attempting to distance themselves from the source. In the initial testing of attitude inoculation, McGuire and Papageorgis (1961) attacked cultural truisms. A cultural truism is a belief that is culturally regarded as truth and is generally comprised of extremely meaningful attitudes held by the subject. A strong inoculation treatment has the potential to throw the receiver into defence where they will take a stance against the incoming argument.

Initial studies concerned with persuasion had assumed that resisting a persuasion attempt resulted in no attitude change. When strong arguments are resisted however, the receiver has been shown to often experience a strengthening of their initial attitude (Kelly and Garcia 2009; Tormala and Petty 2002). This effect is thought to occur due to a strong attack being seen as a test of their attitudes, with successful resistance to such an attack being seen as a rationale for the validity of their original attitude. Kelly and Garcia (2009) specify the need for the message recipient to perceive the persuasion attempt as strong and also to believe they have resisted the attack in order for the strong attack to strengthen existing attitudes instead of stimulating change. Tormala and Petty (2004) add to this by finding the perception of the message source is also an acting mediator. When message source is seen as having high expertise, the resisted attack will indeed strengthen initial attitudes. Should the persuasion message source not be seen as an expert source, the failed attack is not found to strengthen initial attitudes.

When strong arguments are applied to attitude inoculation treatments, Kelly and Garcia (2009) note that as long as the inoculation argument is applied in full, (that is, the receiver is provided with a successful counter-argument) a stronger inoculation treatment attack can be more impactful in maintaining attitudes. Studies such as those of Burgoon and Chase (1973) exploring message strength in attitude inoculation, finding strong arguments to be successful, generally fall to a shared critique. That is, the time between inoculation and attack in these studies is very short.

2.15.2 WEAK ARGUMENTS

The models discussed in this study (ELM, Two Systems, Heuristic / Systematic) rightfully credit the complexity of attention processing as leading to the way a message is processed. As the models themselves outline however, a higher cognitive state must be evoked for successful processing to occur. This is simply not an easy task to achieve considering all the distractions we face in everyday life.

A great advantage of weak arguments is that they do not require a high level of attention (Heath et al. 2006). A common mistake by parties that attempt persuasion, from political groups to your local lemonade stand and all the way to corporate giants, is focusing directly on their offering and their competitors' marketing efforts. The reality is that every stimulus we encounter that successfully acquires our attention is essentially indirect competition. For instance, if somebody sees a political billboard with a stunning sunset behind it, and their attention shifts from the advert to the sunset before the advertising effort is processed, the advert has likely failed.

When self-regulatory resources are not depleted, and someone is exposed to weak arguments, they show no change in ability to counter-argue (Petrocelli et al. 2015). When considering attitude inoculation treatment, it may be that the procedure of weak attitude inoculation treatments will be less affected by distractions. Heath et al. (2006) further endorse the use of weak messages as they present evidence showing that emotional appeals in advertising will be better received under low attention conditions. This is likely due to more attention giving way to a higher likelihood of securitization and counter-arguing.

Weak arguments present a sensible alternative to strong arguments. Kang and Lin (2015) found as fear appeals in anti-smoking campaigns were increased, so was the optimistic bias from smokers. By contrast weak argument is less likely to evoke the need

for defence, resulting in the argument being less resisted. Glock, Unz, and Kovacs (2012) demonstrate this in their study, replacing fear inducing cigarette package labels with contradictory labels challenging common smoker attitudes such as 'smoking is popular. Participants of their study exposed to this treatment identified less positive associations with smoking and reported smoking less after the experiment.

2.16 MULTIPLE ATTACKS

Failing to address the effect of multiple attacks is a great shortcoming of many research papers concerned with the study of attitude. In the real world, multiple attacks are a great part of general life, and something we are constantly exposed to. We are frequently bombarded with stimuli triggering our attitudes and thus evaluation of our attitudes. We face direct challenges like making the choice to squash a bug or put down a beloved family pet. We are also exposed to much subtler environmental cues evoking feelings and thoughts, relying on anchors and associations to guide ourselves through everyday life. Of course, we also face propaganda, urging us to vote for a particular candidate, or maintain trust toward a given source. A simple drive down a highway exposes us to advertisements from the many car brands, to vinyl wrapped vans making us question our regular plumber's competence. Multiple attacks are not only a product of our society but a product of nature itself and a phenomenon that should not be ignored (Ivanov, Parker, et al. 2012).

Once exposed to inoculation treatments, the subjects become motivated to learn to counter the attack while also naturally developing their ability to build higher resistance to future attacks (Bobi Ivanov et al. 2009). Inoculation treatment leaves subjects used to the notion of having not only a particular attitude attacked, but also naturally aware related attitudes may also be susceptible to attacks (Kelly and Garcia 2009; Parker et al. 2016). This occurs due to similar and or related attitudes sharing building blocks (Fishbein and

Ajzen 1975). We can imagine how a footballers' positive attitude toward a different sport, perhaps rugby, may be affected when exposed to new information attacking one such building block. If one such building block is the pleasure of being on a field, or perhaps the practice of teamwork, the person would make obvious connections between the sports. Now, should the footballer receive an inoculation treatment designed to reinforce their positive view of football, they will likely apply the treatment to shared attributes of rugby also. Parker et al., (2016) have named this occurrence the 'blanket of protection' offered by attitude inoculation.

The idea of blanket protection in some cases can also manifest in extension of the type of inoculation provided. As Compton (2016) outlines, even though an inoculation treatment may be applied with a particular goal intended, its reach can be wider than anticipated. Compton (2016) particularly makes example of inoculation treatments already often employing image repair strategies through use of positive evidence in favourable messages. It appears in cases where a company may apply inoculation toward a product or service, they may also be gaining a pre-emptive image repair. A recent study by Ivanov et al. (2016) looked at inoculation being used as a tool to maintaining public confidence in government agencies' ability to prevent and minimize the impact of politically motivated violent attacks. Not only was this successful, the inoculation treatment also provided blanket protection in the form of higher confidence toward government being able to deal with general crisis. Ivanov et al. (2016) speculate the fear generated by the threat of politically motivated violent attacks may be effectively lowered with inoculation treatment.

The attitude inoculation strategy is most effective when participants practice defence through participation. By being exposed to attitude inoculation, people develop the ability to create more robust future defences. This leaves inoculated subjects better prepared against subsequent attacks and even in face of new counter arguments they had not yet faced (McGuire and Papageorgis 1961). Personal factors must also be considered.

These may be the likes of attitude accessibility, inoculation message framing or respondent participation (Gadiuta 2015; Pfau et al. 2003).

2.17 COMMUNICATION

The success of message delivery is dependent on the communication process. First, the manner in which the message source delivers the intended message determines the impact of a message. Second, the analysis of the communicative process by message receivers comes into play. As mentioned under the memory heading (Chapter Two, 2.5), message receivers usually interpret a communication in an individualized, idiosyncratic form (Lang 2000). The act of persuasion is of high complexity, as Miller et al. (1976) found. In their study on speed of speech and persuasion, the results showed that rapid speech enhances persuasion through acting as a credibility cue. However, the infomercial salesman now quickly comes to mind, leaving fast speech as a behavioural warning as we come to associate fast speech with a persuasion attempt, usually aiming for a low-quality sale. Miller et al. (1976) recognize there are possible mediators at work. Faster speech speed requires higher concentration by the message receiver, increasing the attention given to the message. When someone speaks quickly, they also decrease the length of pauses, leaving less time for rebuttal or thought to contradiction.

2.17.1 POST INOCULATION TALK

Being social creatures with desires to belong to groups, we humans are prone to social conformity. This occurs when we mirror favourable behaviours of high-status persons from a group we want to be in or stay in, as well as changing our own attitudes to match the group norms. While often conforming to a social group is advantageous in helping us fit in (Mahaffey and Bryan 2016), this conformity at times also clouds our judgement, making us ignorant to whether that groups behaviour is objectively wrong (Izuma 2013). Such expression of attitudes in the modern world can be clearly witnessed

in online communities group members' usage of memes. The most successful spread of memes occurs when the meme is consistent with the groups topic and norms (Mazambani et al. 2015). Studying meme spread in viral communities, Mazambani et al. (2015) found that memes started by low-status members spread faster than those of high status users. This is likely due to low-status members being more motivated to gain status, aiming to do so through higher contribution of information in discussions and willingness to try new ideas.

Compton and Pfau (2009) identified a somewhat unexplored by-product of attitude inoculation treatment, this being post inoculation talk. Once someone has received an inoculation treatment, they are more likely to talk about the subject with others. Current understanding of attitude inoculation suggests this happening is driven by the original core properties of attitude inoculation, threat (or arguably, as more recently shown, general motivation and refutational pre-emption (Ivanov, Miller, et al. 2012; Pfau et al. 2003). When medical inoculation was introduced successfully in an area, many of those receiving the treatment passed it into others, being motivated to eradicate a virus while also having pleasure in helping others, the spreading of medical inoculation medicine occurred with ease, not only from the medicine being shared, but in cases also being passed on from person to person, due to the viral component of the treatment. After receiving attitudinal inoculation, people become more confident about the treated attitude (Lin and Pfau 2007). By equipping the inoculation receiver with the newfound ability to produce defensive arguments, they are motivated to increase their engagement in conversation on the particular attitude, and less frightened by challenges, thus attitude inoculation has the ability to spread even to persons that did not directly receive the initial treatment. This phenomenon is perhaps also helped by emotional contagion, the spread of emotions through mimicry of movement, voice, expression, posture and behaviours (Hatfield et al. 1994).

Compton and Pfau (2009) came to conclude that a powerful campaign is not only one that informs and persuades, but also motivates people to spread the message. Again, message framing is also to be considered. Factors such as source attractiveness and source expertise moderate the way a message is processed, as discussed earlier. Negative word of mouth is likely to be influential when the source is seen as an expert, while a greater social tie will increase the likelihood of behavioural intent as a result of a word of mouth communication. As social ties strengthen between the WOM source and message receiver, there is also some encouragement in furthering message spread (Baker, Donthu, and Kumar 2016; Radighieri and Mulder 2013)

In the day to day of it, compared to an advertisement or lesser known source, a family member or friend is more likely to persuade us to try a dish at a particular restaurant, enrol into a university or buy a certain brand of car. While the ideal is for inoculation to spread through word of mouth, inoculation is also one of the best means to protect against negative word of mouth (Compton and Pfau 2009; Fox and Rinaldo 2014).

Though word of mouth is still most powerful in person, our modern online world only serves as to increase message spread through our extended interpersonal reach. Largely due to the increased access to online communication channels gained by many people in recent years, electronic word of mouth is occurring between consumers who have never met (Jalivand et al. 2011). This increase in connectivity has given rise to peer-to-peer campaigns, currently in fashion with marketers. These campaigns excite advertisers with the idea of consumers conforming to artificially created norms (Mourali and Yang 2013). Empowering customers through providing greater control over outcomes counters this strategy, however. Empowered persons certain in their attitudes are more resilient toward social influence by discounting the opinions of others (Mourali and Yang 2013). An inoculation treatment acts as empowerment through providing someone with increased knowledge, confidence and ability in defending an attitude.

3. CHAPTER THREE: MAJOR MODERATORS AND MEDIATORS OF ATTITUDE INOCULATION

3.1 TIME

The longitudinal effects of inoculation treatment are one of the primary interests of this research. Scholars in the field of attitude inoculation criticize early research for the lack of duration allowed between testing and re-testing (Pfau et al. 2006). While this critique stands, more recent attitude inoculation research has still not provided consistent and conclusive information detailing the effects of time. This shortcoming has resulted in newer research on attitude inoculation still subscribing to the trends shown to date, suggesting attitude inoculation suffers from decay, lessening its effectiveness unconditionally as time passes (Ivanov, Parker, et al. 2012; Lin 2005). More recently, Niederdeppe et al. (2014) noted the effectiveness of attitude inoculation, where it successfully changed short term beliefs about opposing political policy concerned with soft-drink taxation, although the successful inoculation treatment failed to be maintained effectively over the long-term. From a meta-analysis of research on attitude inoculation conducted in 2010, Banas and Rains concluded that a moderate time delay between an inoculation treatment and an attacking message is more effective than longer delays or no delay. According to their analysis, decay in the resistance resulting from inoculation sets in at 13 days.

While the notion of a decay in the effectiveness of attitude inoculation is not something I challenge, I do seek to better understand the inner workings of this happening, and understanding whether it is an absolute phenomenon, or whether there are particular moderating factors at play, such as inoculation argument strength. Despite my previous research having had a longer period of testing than most attitude inoculation studies, the main limitation of the research was the single period of two weeks being allowed between

inoculation and attitude measurement (Gadiuta 2015). The results of this prior work showed no significant change in the efficacy of the weak message over time (a non-statistically increase) while the efficacy of the strong argument fell sharply. Whether this effect continues in the same direction (as I hypothesize it does), or if it dissipates over a longer period is the subject of this experiment. While (Banas and Rains 2010) present the ideal time delay of 13 days between inoculation and attack, based on additional attitude inoculation experiments (Godbold and Pfau 2000; Bobi Ivanov et al. 2009; Pfau et al. 2006), an elapsed period of four weeks between initial testing and re-testing seems to be an appropriate secondary testing period. To the best of my knowledge, this would be the lengthiest duration applied to attitude inoculation testing to date. In turn, the four-week frame allows for inclusion of a booster message at the half-way point, 13 days, as said to otherwise be the point of decay (Banas and Rains 2010). Booster messages are explored in more detail later in this chapter.

3.2 INTENT AND LOYALTY

Elliott, Rundle-Thiele, Waller, & Paladino (2004), define brand loyalty as “A customer’s favourable attitude toward a specific brand” (p213). Under this definition of brand loyalty, customers will be more likely to consistently purchase offerings from the brand they are loyal to. Loyalty can be behavioural, attitudinal or both. Jensen and Hansen (2006), however, illustrates the necessity of attitude as an absolute requirement for true loyalty to occur, as a lack of matching attitude to loyal behaviour may simply be spurious. Jensen and Hansen (2006) turn to the work of Odin, Odin, and Valette-Florence (2001) who describe brand loyalty as a decisive approach based on attitude rather than just a behaviour. As noted throughout Chapter Two, though attitudes and behaviour are deeply intertwined, there are many factors that can prevent expected behaviour from manifesting. Aside from factors to the likes of social influence and norms that moderate attitude and repeat purchase intent, the likelihood of loyalty is dependent on relative attitude, equally to

or even more so than strength of an attitude (Dick and Basu 1994). For example, if someone says they 'like monkeys', such a statement works as a better predictor of loyalty toward anything to do with monkeys across any mediums and in different contexts, as opposed to the statement 'I really love monkeys in videogames like Donkey Kong Country!'

Kim et al. (2008) highlight the fundamental characteristic, attitude strength, acting as a mediator for cognitive and affective conviction allowing loyalty to manifest. Kim et al. (2008) also note findings in a study by Bain & Co., detailed by Reichheld, F and Teal, T (2001) that found a company's profitability can increase as much as 40% to 95% with only an increase of 5% in customer loyalty, while a mere 1% increase in loyalty was found to equate to a 10% cost reduction. 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 Jr. et al. 2010). The amount of loyalty one holds, in the case of this study, toward a brand, can be measured by evaluation of the modes of resistance generated toward counter-attitudinal attacks (Ahluwalia 2000). In my experiments, I drew upon the attitude formation theory presented in the Elaboration Likelihood Model by Petty and Cacioppo (1986) to develop measurement constructs for intent, which in turn may be an indicator of loyalty likelihood.

3.3 RELEVANCE

Experience, or frequency of use and or exposure will also likely moderate the main effect (Karani and Fraccastoro 2010; Petty and Cacioppo 1986). This is due to participants in such categories feeling the subject matter to be of more relevance and in turn likely creating more involvement, which is a fundamental part in determining the success of inoculation. In my 2015 study (Gadiuta 2015) I found that frequency of use played a role on the success of attitude inoculation. Though both strong and weak

inoculation treatments did not provide any significant immediate results, less frequent users were successfully inoculated after a period of two weeks through the means of a weak inoculation argument. This moderation potential is further supported by Meijer, Gebhardt, Dijkstra, Willemsen, & Van Laar (2015), who shown that users who saw themselves as non-smokers have stronger intentions to quit, suggesting that frequency could be a moderating variable that causes messages to be blocked, or ignored. Andrews et al. (2014) describe persons with less experience in smoking being more open to health-based arguments against smoking.

As people gain experience, in the case of Gadiuta's (2015) experiments one, two and three, through the behaviour of increased frequency of cigarette consumption, they are more likely to reject health warnings against smoking. This is simply a coping mechanism compensating for the increase in consumption. In a positive correlation between thoughts of quitting evoked by graphic warnings on cigarette packages and smoking frequency, Andrews et al. (2014) found that heavy smokers are less influenced by graphic warnings. Similar findings were also come to in other studies concerned with fear message appeals against smoking, even showing increases in fear were linked to increase in optimistic bias (Kang and Lin 2015; Shen 2015). The trend is a common response seen in health messages loaded with fear appeals. As the message concern increases in personal relevance, so does to the defensive responsiveness of the message receivers. This happening occurs due to perceived threat toward ones self-image following a fearful message (Kessels et al. 2014).

These are clear examples of the limitations of most current anti-smoking persuasion attempts. Rayner, Baxter, and Illicic (2015) identified fear inducing, high intensity physical harm messages, creating greater recall when viewed for a short period of time. This was credited due to the arousal caused through shock, which would quickly deteriorate after prolonged or repeat exposure. To increase the effectiveness of the health

warning fear appeals, different messages would be needed for non-smokers, phantom smokers, social smokers, casual smokers and heavy smokers. If not impossible, this is at least highly unfeasible. The alternative solution, is a different approach to campaigns, employing persuasion attempts comprised of messages designed for wider groups, combining users and non-users. When heavier smokers perceive themselves to be lesser users, they show stronger intentions to quit (Meijer et al. 2015). Considering user experience and level, perhaps campaigns that aim to make all smokers feel like low-level users may produce more favourable uniform results. The consideration of experience in relation to smoking is done so in accordance to the framing of the experiments in this research, however experience remains a unique moderator, regardless of positive or negative framing. This notion is illustrated in the ELM model (Petty and Cacioppo 1986) as experience gives message receivers more pre-existing anchor points for quicker message evaluation. Though we often credit older persons with being more knowledgeable, it is indeed a person's experience that plays the greatest role in this positive stereotype. Older persons have simply had more time to gain knowledge, strengthen attitudes and practice behaviours.

3.4 BOOSTERS AND REPEAT MESSAGES

The number of favourable arguments used in a persuasion attempt is of some influence. Shu and Carlson (2014) specifically found three supportive messages to be the optimal amount as this number being exceeded leads to scepticism and a higher likelihood of sparking motivation in counter arguing. While the number of favourable arguments in a treatment is important, the topic of overall exposure frequency has seen even more debate. Scholars traditionally resided in one of two groups. Framing these mindsets in the context of advertising, there are those who believe less is more, with a lower frequency of advertising being more effective, and those that feel the more a person is exposed to an

advertising treatment, the more likely they are to experience favourable outcomes like product recall and recognition.

While agreeing that both high and low advertisement frequency can be successful strategies, Tellis (1997) makes the case that ideal frequency is uniquely guided by situational factors. Such factors include the consideration for message complexity, familiarity and perhaps most importantly, the medium the message is delivered through. Jeong, Sanders, and Zhao (2011) confirm both commercial length and advertisement frequency to being effective means to increasing campaign effectiveness. Contrasted though, advertisement frequency was found to be the more effective of the two methods, with the number of repetitions being positively associated with audience's brand recall and recognition. According to Jeong et al. (2011) a longer advertisement length allows audiences more time to process the message, while also giving writers more length to present a likeable story. Shorter commercials in turn are often perceived to be longer than they really are, lowering their effectiveness. Despite advertisement length, a higher number of advertisement exposures leads to a higher likelihood of remembering the brand name at point of purchase and improves the perception of the quality of said brand.

Another important occurrence to consider is participant involvement, where real world settings show that in many cases, treatments are not completed (Schmidt and Eisend 2015). The environment is thus again highlighted. Switching radio stations when listening to a long advert is much easier to do than leaving your seat when an advert is screened during a live, high profile sporting event like Wrestle Mania. In line with the rule of Petty and Cacioppo's Elaboration Likelihood Model, when exposed to a communication stimulus such as an advert, where the message receiver does not have the ability to dedicate resources to receiving the message, message processing will be incomplete.

However, when the audience of an advert have a surplus of resources dedicated to the processing of the message, additional, non-communicated thoughts occur (Anand and Sternthal 1990). While at first repetition of a message increases the persuasiveness of the message as well as the message source credibility, should the repeat message be applied too frequently for the audience, a negative evaluation of the source and the message will start to manifest (Reinhard et al. 2014). In the case of advertising, marketers should be mindful of the conditions under which consumers are likely to receive the message.

In situations where an audience is expected to be highly engaged, such as during a live event, a longer, more complex advertisement will be beneficial. In contrast, when an audience is unmotivated or unable to process the message, such as when someone is tuned into a random radio station while driving, shorter advertisements with higher repetition are more successful. The adding of just one extra commercial was found to increase the audience brand recall by 7.79%, while increasing the commercial length only increased brand recall by 2.7% (Jeong et al. 2011). Supporting the repetition approach, Schmidt and Eisend (2015) found ten exposures being the ideal amount in reaching maximum favourable attitude. This is driven by considering in most advertising exposures, participant involvement is low. While the amount of advert screenings should be higher to increase attitude toward the brand, the spacing between advert repetitions must also be considered. Greater spacing between repeat exposure increases attitude toward the brand, while higher repetition rate increases recall. As a person becomes more engaged with the communication, the amount of exposures required to reach favourable outcome decreases (Schmidt and Eisend 2015).

Stephens and Warrens (1984) debunk the idea that older adults require a higher repetition of advert exposure, failing to find any significant difference between the learning of younger and older adults. In their study, Stephens and Warrens (1984) also found

recognition to being generally superior to recall at each tested frequency exposure level, without decline after a seven day period.

While many scholars and practitioners hold recall as the trialled and trusted measure of successful message delivery Angell et al. (2016) makes a strong case in showing that though recall is an attractive outcome, recognition should be the most ideal measurement target variable for determining successful persuasion. As recognition is a valuable and reliable outcome, post treatment exposures to stimuli that trigger some degree of recognition may have the ability to work as 'booster messages', strengthening a treatment over time. The booster message generally comes in the form of a repeat exposure to a previously witnessed message (a repeat of an advert), or a shortened message designed particularly with the intent to remind of a longer previous treatment. At times, even an individually experienced emotional state can act as a reminder/booster message as the emotion itself becomes the reference point (Mayer and Tormala 2010).

Thus far, work in the field of attitude change and resistance to attitude change often has a particular recurring limitation. While in laboratory conditions controls can be applied to avoid exposure to distracting stimuli, in a real-world scenario it is highly likely that one would face repeated and often conflicting persuasion attempts. In the field of marketing this would hold for all advertising exposure, but is especially true for two-sided advertisements and comparative advertising (Soscia, Girolamo, and Busacca 2010). Though many previous studies have addressed this particular limitation, it is also potentially, as Michael Pfau et al. (2006) suggests, a major moderator in the effectiveness of an attitude inoculation treatment. In a negative framing context, such repeat exposure can be seen as an array of attacks. In their 2009 study, Ivanov et al., found that though weakened when facing multiple attacks, attitude inoculation treatment was still the superior

strategy in conferring resistance to persuasion. Under positive framing, even a weak repeat exposure may act as reinforcement for an inoculation treatment (Bobi Ivanov et al. 2009). Again, taking terminology from medical inoculation, positively framed reminders act as a 'booster shot.' Despite prevalent real-world occurrence of this phenomenon, there is very little literature to date which explores the workings and effectiveness of attitude inoculation paired with booster messages. In real-world marketing conditions, we are surrounded and bombarded by advertising designed to persuade or propagate (Brinol et al. 2015). Consumers are exposed to multiple advertisements, repetitions of these advertisements and frequent reminder cues. Examining the impact of a booster message may place inoculation treatment as the favourable advertising method in retaining customers and extending product life cycles (Bither et al. 1971).

Examining a series of experiments conducted in literature concerned with message order, Haugtvedt and Wegener (1994) found, in high-relevance conditions, people are more motivated to elaborate on the first message seen rather than a second message. When motivation is low, people will base their judgment on the more recent exposure (second message). Advertisers sometime practice introduction of a simple short message as a follow up reminder to greater initial exposures. Pfau et al. (2006) refers to such deliberate simple reminders as booster messages. While concerned with message timing, through assessing the effects of repetition and timing of political advertisements, Fernandes (2013) recommends longer exposure intervals between advertisement repetition. While high repetition will stimulate more positive message source evaluation, the longer spread of repetition timing lowers the likelihood of annoyance and increases message processing.

3.5 GENDER

In this research, I refer to gender in the traditional sense, where male and female are not identity marks but rather biological and physiological characteristics. No objective review denies that there are clear differences between the two genders. The differences are not only physiological but also mental and emotional. Though there are certainly exceptions, men and women process information differently (Amuta et al. 2016). Literature has found self-reporting females as being more likely to identify with emotionally-driven messages (Kemp, Kennett-Hensel, and Kees 2013; Shen 2015) while men tend to produce stronger reactions to cognitively-charged messages (Mayer and Tormala 2010).

Environment and social constructs also play a great role. Fisher and Dubé (2005) argue it is not that men are less emotional than woman (showing no significant difference), but rather that men are less likely to express emotions, especially ones that aren't stereotypical of masculinity, such as vulnerability, especially when other men are around. The same construct of masculinity is likely behind males being found to be more charitable when appeals target their pride (Kemp et al. 2013). This indicates the relevance of the social construct of masculinity as the same finding was true not only for biological males, but also for persons holding a higher sense of masculinity.

In a real-world setting, Matusitz and Breen (2013) make reference to males not only having higher incarceration rates, but also having a lower rehabilitation rate in contrast to female prisoners. The sexual mindset also appears to play unique roles, where when a message is sexually framed, only men that are in a 'mating mindset' were found to respond more positively, in contrast, all women responded similarly (Kim and Kim 2016). On the subject of profit achievement, Yurtsever, Ozyurt, and Ben-Asher (2013) suggest that there are no gender differences in profit potential, rather it is cognitive suppression

and cognitive appraisal that mediate traditional results in gender differences, each potentially effecting males and females in different ways.

Concerned with attitude resulting in protective health behaviours, Amuta et al. (2016) found male attitudes to be more favourable of physical activity. Females, however, were found to have healthier attitudes toward food consumption, being more aware of calorie information and consuming more fruit and vegetables (Wood et al. 2014). Males in this study were also less concerned with weight and didn't see it as much of a health risk as females did. Such a finding is very telling in the sense that gender also predispositions people to different risks, not from biological factors alone, but also environmental cues and attitude likelihood driven by social constructs of gender roles (Amuta et al. 2016; Fisher and Dubé 2005). Males have been shown to be more likely to partake in risky behaviour, while women are generally more health aware. Females have also shown signs of being more influenced by persuasive messages with argument type framed differently to initial attitude type (cognitive/emotional) (Millar and Millar 1990).

Gender should be considered when messages are framed while also being mindful of target audience relationship/sexual status and message retrieval setting (group/individual). As detailed, the current literature clearly indicates gender as a potential moderator when concerned with the processes of attitude formation, attitude change and potentially resistance to attitude change. Gender should be considered when attitude inoculation treatments are administered, especially in environments where the sexes are split, such as social environments like prisons and healthcare or gender specific services.

3.6 AGE

Most prior research concerned with attitude inoculation makes use of student participants. This is a great limitation when concerned with age as most of the students fall into a younger age bracket. Though many attitudinal patterns are shared between

experienced persons and older persons, there are also unique challenges experienced purely due to age. Biological factors including hormones alone drive persons of different ages to respond differently. Younger people for instance, are more prone to responding to fear appeals found in anti-smoking campaigns. Older people on the other hand, are more inclined to avoid risk (Andrews et al. 2014). In response to social circumstances, younger people are more flexible and responsive, however this decreases gradually with age (Krosnick and Alwin 1989).

As we age, the arguments we are persuaded by begin to change. This falls in line with the primitive driver for maximizing pleasure and reducing pain, however, as we grow mentally, we understand that higher pleasure is sometimes achieved by enduring some degree of pain (Fishbein and Ajzen 1975; Petty and Cacioppo 1986). From my prior study (Gadiuta 2015) I anticipate that older persons will be harder to inoculate as the inoculation treatment itself would be a new experience and it may stimulate avoidance. Despite a trend in my previous data that appeared to support this notion, I was unable to produce any significant results due mainly to the small sample size covering age variation. Upon further investigation of the effects of age, I concluded that the opposite could also be true, where older persons would respond better to inoculation than younger people.

In studying smokers' attitudes, Leeuw et al. (2008) found behaviour the dominant predictor of latent attitudes. People who smoked as adolescents had fewer negative attitudes toward smoking because of this behaviour. As adolescent behaviour is often driven by social goals, younger persons are more likely to ignore health consequences (Leeuw et al. 2008). As the subject matter presented in the scenarios in this thesis that are concerned with testing age use the topic of dental health, it is likely that older participants will be more engaged by the topic.

Aging causes varying struggle with increasing physical limitations while we eventually encounter various levels of cognitive decline such as deterring working memory (Karani and Fraccastoro 2010). Healthy aging has been reported to cause deterioration of explicit memory capability, however, has also been shown to have no effect on implicit memory (Mulligan 2011). Such natural occurrences of the aging process result in older persons being more reliant on strongly held beliefs and attitudes and thus expressing higher likelihood of resistance to persuasive attempts or even self-induced change. Translated to a marketing environment, as people age, they generally become more loyal toward their favoured products and brands. Karani and Fraccastoro (2010) describe older persons maintaining loyalty even in cases where they are not truly satisfied, most valuing existing emotional contacts over new informative ones.

With a much larger sample size than my previous experiments on inoculation (Gadiuta 2015) the experiments in this thesis will likely produce more concrete results in terms of measuring the relationship of age and inoculation effectiveness. The age range of the subjects in this proposed study is open to all those over 18. Though smoker life expectancy is 9 years lower than the average of non-smokers, dental hygiene literature and similar statistics show persons over 65 to care strongly for maintaining dental health (Anon 2017b). Previous inoculation studies are commonly critiqued for only having used student participants in their experiments (Karani and Fraccastoro 2010; Petty and Cacioppo 1986). Due to the legal age restrictions of smoking, as well as moral and ethical reasoning, persons under the age of 18 are excluded from the study. Despite the age restriction, the sample participant groups extend over a wide age range. Effects of younger participants will likely still manifest as it has been established that younger persons being more susceptible to attitude change is a phenomenon that lasts well into young adulthood (Krosnick and Alwin 1989). As the interest of my study is primarily investigating the effects of various applications of inoculation in a marketing context, and considering that age is

one of the most common demographic segmentation choice in marketing, it is of high interest to assess whether or not differences in the response to inoculation are moderated by age.

3.7 MARITAL STATUS

In a marketing context, as well as in various other social environment measures, marital status is a leading demographic factor (for convenience, “marriage” is used throughout the thesis to indicate a partnership situation). Segmentation through marital status not only allows for unique targeting of messages, but also helps to predict group behaviours and message appeals (Belch and Belch 2012). Differences in behaviour have been reliably observed between single people and those living in a partnership relationship. It has been well established that couples tend to hold more health positive attitudes and exhibit these through a higher likelihood of pursuing healthy behaviours when compared to singles (Schoeppe et al. 2018). Contrary to this notion, single people have been shown to be higher risk takers, be more susceptible to illness and fare significantly worse in terms of psychological well-being (Hsu and Barrett 2020).

While marriage itself has advantages such as psychological support, better economic opportunities, and more positive health behaviours, Kim, Ah Lee, and Park (2017) argue that there may be several existential contributors to married people faring better than those that are single. These include the selection process of marriage itself, with healthier people being more likely to get married, an increase in support network access to married persons and the act of marital termination in itself being a stressful event that may contribute to an increase in unfavourable attitudes and behaviours. Despite such likely components, Kim et al. (2017) still maintain the differences in behaviours between single and married people are significant and many, especially when considering topics related to health.

3.8 KNOWLEDGE AND EDUCATION

Though this variable is often thought to correlate to income and is generally combined into a single, “up-market” variable, it is not a suitable approach for the purpose of my research. The primary statistical sources I have investigated show, for instance, that a higher level of education results in a lower likelihood to smoke (Anon 2017c Anon 2017a; Janz 2017). In their 2008 paper, Leeuw, Engels, Vermulst, & Scholte reveal that often, the behaviour of smoking itself will be a more reflective compass of attitudes toward cigarette consumption. As choosing to smoke has been linked to social influence, the lesser likelihood of persons with higher education smoking may be attributed to the higher social currency that education can provide (Langner et al. 2013).

Though a higher level of education will generally equip one to be more sceptical and testing of information (such as better assessment of health risks associated with smoking) (Fazio et al. 1989), higher education can also lead to troublesome traits when attitudes are challenged. This includes less trust in sources and increased scepticism of information. As attitude inoculation treatment can be applied more subtly than other methods, it may prove as a strategy which does not become as easily challenged. Brinol et al. (2006) however, reflect on the possibility of subjective ease leading to premature confident assessment. To date, there is little research covering moderating properties of education on attitude inoculation. To determine a metric of prior knowledge or persuasion knowledge, questions concerned with these potential mediators are included in the respondent screening stage.

3.9 INCOME

World-wide, populations living in low-income situations face a higher risk of diet-related chronic disease (Gittelsohn and Trude 2016). Though I have not found literature to indicate income levels play a role on attitude inoculation, income may direct culturally nurtured behaviours and attitudes (Petty and Cacioppo 1986), such as care of dental hygiene. The subject framing is also clearly moderated by level of income, resulting in a potential difference in reaction due to message framing (Brinol et al. 2006; Laroche et al. 2001; Mayer and Tormala 2010). In the framing of tobacco smoking, low income persons felt the greatest burden from increased taxation on cigarettes. Despite this, they were often not able to quit and left feeling uncared for (Hoek and Smith 2016).

When considering dental health, the high cost associated with dental work was the biggest inhibitor of regular check-ups. Naturally this most effects low-income populations, as low income groups also show a higher acceptance of tooth loss as they age (Anon 2017b). Income is also linked to empowerment, as empowerment is in part defined by an individual's access to valuable resources. This increased control over resources and outcomes so often correlated to income also results in more powerful individuals not only being more influential themselves, but also being less dependent on others (Mourali and Yang 2013). This empowerment generates higher confidence in attitudes, increasing the likelihood of empowered individuals resisting persuasive attempts while also displaying less socially conforming behaviours.

4. CHAPTER FOUR: RESEARCH CONTEXT

4.1 MARKETING CONTEXT

Pinson and Roberto, (1973) cite Kristian Pala touting attitude and behaviour as best studied in the field of consumer behaviour. The field of consumer behaviour is described as the ideal discipline for studying the relationship between attitude and behaviour. The marketing environment is a battleground of competition, each year, seeing more combatants and champions of persuasion attempting to survive and thrive on entering this arena. This atmosphere offers researches a great range of testing opportunities, easily built scenarios with high subject understanding and a great amount of control over experimental manipulations, all the while reducing negative participant experience.

Framing inoculation research in a marketing context allows the opportunity for safer experiments, where subjects are less likely to experience negative consequences due to the research subject matter. The use of brands, products and services are (most often) less sensitive in contrast to topics in the areas of politics, finance or religion, which are often strongly bound by markers of identity and supported by long-term cultural truisms and social grouping. The marketing framing of the scenarios used in the experiments conducted in this research allows for realistic presentation and story telling that participants may quickly understand and subject matter that they will be familiar with.

The context also enables post-experiment comparisons with real world cases of similar circumstance or themes. Additionally, the familiarity of the subject framing provides the opportunity for easier replication of the experiments conducted. Though scholars researching the field as well as marketers and companies alike have dedicated great resource and effort to understanding the development of attitudes, by contrast, resistance to attitude change in marketing conditions has had far less study (Lessne and Didow Jr.

1987-1998). The study of attitudes toward products provides great variety in measure, giving researchers the ability to observe actual behaviour and even allowing for testing of tangible interaction (Fazio et al. 1989). Sales, for example, are described by Pinson and Roberto (1973) as an obvious measure to the likes of which few other practices have access to. Additionally, factors such as loyalty toward brands and products and usage are also convenient observable measures.

Evaluating attitudes in a marketing context allows for precise probing of the attitude association continuum, whereas Fazio et al. (1989) describe this as “*A continuum in terms of strength of the association in memory between an object and an individual’s evaluation of the object*”(p.280). On one side of the continuum, a person has no attitude or past evaluation of the object in available memory. This concept aligns with Kahneman's (2011) point of knowledge or attitude only guiding us so long as they are accessible and also supports the fundamental step of the ELM as discussed in Chapter Two under heading 2.5, memory. At the other end of Fazio's continuum, is the highly accessible evaluation between the object and attitudes.

Whether the message is targeted at customers, patients, investors, opinion leaders, employees, competitors or even victims, the goal of persuasion remains. Specifically, successful advertising efforts are evaluated by the rate of which a new brand can build awareness while an existing brand is able to maintain favourable attitudes. In either case, a desirable effect of the advertising effort is stimulating positive word of mouth, reinforcing favourable attitudes (Day 1971). Before the year 2005, most research on the topic of attitude within a marketing context focuses on mass media. Increasingly, audiences now have far more agency over their media consumption (Gvirsman 2014).

All but gone are the days of people accepting having to sit through five-minute advertising segments during their favourite shows, tuning in at weird hours to avoid missing their show. As media platforms are evolving with our behaviour around media consumption, advertising strategies are also needing to adapt. This need for evolution creates opportunity for marketers to experiment with lesser used strategies, such as attitude inoculation. Having a marketing context as the framing of the research conducted this thesis may provide practical evidence for the workings of attitude inoculation which marketers can then examine and apply.

4.1.1 ATTITUDE INOCULATION IN MARKETING

It is no secret that companies spend unimaginable amounts of resource in attempting to persuade people to develop favourable attitudes toward their brand. Persuasion, however, is not enough. Marketers should not only aim to persuade attitudes, but should also strive to create campaigns that are able to ensure the favourable attitudes are kept even after being attacked by competing brands (Kelly and Garcia 2009). In 1971 Bither et al., addressed the potential of applying attitude immunization techniques in marketing, particularly as an effort to extend the most profitable stage of the product life cycle. Bither et al. (1971) highlighted the urgency for marketers needing to investigate methods in making customers' favourable attitudes more resistant to change, a feeling shared by many scholars. This need is perhaps more necessary than ever in our fast-paced modern market environment, where competing offers are easy to come by and consumers are relentlessly inundated with messages attempting persuasion. Such messages are designed to shift positive attitudes toward competing offerings. Angell et al. 2016 bring attention to yet another unique element of our modern world, that being 'media multi-tasking'.

It is not uncommon for someone to consume multiple media at the same time. A videogame may be played while listening to a radio show or podcast, it is also highly common that people use their smartphones in the ad breaks of their favourite show. This increase in multitasking equates to less attention dedicated to processing messages, a troublesome thought for advertisers at least. In traditional settings, media multitasking has been shown to create worse recall and recognition. However, media multitasking also allows opportunity for advertising to employ behavioural techniques, for instance, urging users to take part in a short game on their phone or making a comment on what they speculate will happen in a sporting match with the chance to win prizes.

Commonly, attitudes toward brands are seldom held as strongly as cultural beliefs (Bither et al. 1971), allowing this barrage of persuasive messages to influence even loyal clients should they not be equipped to resist attitude change. As mentioned in Chapter Two, section 2.14, successful application of attitude inoculation creates two key points, first it equips receivers of the treatment to develop better forewarning toward potential attacks, and second, it motivates individuals to prepare defences (Lessne and Didow Jr. 1986-1998). It behoves marketers to employ attitude resistance techniques within their marketing strategy in order to diminish the effectiveness of persuasion attempts from competitors. Attitude inoculation has been presented as able to withstand multiple attacks within a marketing environment (Ivanov et al. 2009), produce potentially controllable longitudinal effects based on message strength (Gadiuta 2015), and address groups of both users and non-users in a two-sided immunization-type message (Bither et al. 1971).

The potential of attitude inoculation in the marketing environment does not stop there, however. Pfau, (1992) illustrates that 'inoculation employs a warning of an impending attack' (p.39). Foreseeing such threat, this process can motivate the subject to counter the attack with self-generated counterarguments. In this manner inoculation may provide a 'blanket' effect, providing protection from unexpected varying attacks (Parker et

al. 2016). The pre-emptive property of attitude inoculation has been found to be especially valuable for service providers. We have all come to take most services for granted, and customers should certainly 'get what they pay for' – however, a system failure to an otherwise flawless service can result to companies earning approbation. Fast internet service is increasingly treated as a basic utility by consumers, and negative reactions spike with downtime and slowdown. Internet service marketing campaigns often compete on embellishing convenience, implying promises of minimal downtime, and sustained fast connections, which reinforce the assumptions held by consumers. Were these companies to apply appropriate attitude inoculation strategies to their campaigns and prepare customers for impeded services, negative reactions would be assuaged.

The same circumstance holds true in the realm of sports. To maintain fan loyalty, teams have to prepare fans for losses and attempt to maintain the fans dedication through not only losing streaks and seasons but also in the face of any negative publicity a club may face. Compton (2016b) explains it is not only the teams and clubs that benefit from maintaining fan loyalty, but also the fans themselves. Successful inoculation in a sports context can even be considered from a health perspective, as higher identification with teams leads to collective self-esteem and lower loneliness, which is especially important for older people who are at higher risk of experiencing loneliness. A team's victories and defeats are often treated as one's own personal success and failure. This is why so many fans experience strong emotional reactions when their team is winning or losing. While a service provider such as an internet company, knows their service will eventually have some temporary downtime, unless a sports team is Harlem Globetrotters, or the Chicago Bulls in the 90's, sports teams know they will most likely fail to win a season. As inoculation is a pre-emptive strategy, its application serves as a powerful tool in maintaining favourable attitudes with fans.

Mikolon, Quaiser, and Wieseke (2014) found when exposing airline customers to an inoculation treatment, the customers experienced less decrease in satisfaction as a potential failure or shortcoming in service was expected. It was also found that when there was no failure in service, the inoculation treatment addressing potential failure had no detriment to customer satisfaction. Though attitude inoculation has not been shown to aid in situations where customers have a high level of service involvement, attitude inoculation does undoubtedly help maintain satisfaction of the average user. Most service providers cannot realistically provide a flawless service, just as all but one sports team in a given sport can deliver on the promise to win that seasons play-off. It is more sensible, and likely even more feasible to apply a pre-emptive inoculation rather than attempting to appease attitudes with recovery strategies after a service problem or downtime (Compton 2016b). Notably, Mikolon et al. (2014) found attitude inoculation treatments to work best when faults are attributed to external sources, such as an internet provider explaining potential downtime being caused only by acts of god or power companies. Though more effective, Mikolon et al. (2014) rightfully warn such use of attitude inoculation could cause business to business problems and should only be used with great caution.

4.1.2 ADVERTISING AND PROPAGANDA

At its core, advertising is an attempt at social influence in favour of the subject product or offering (Fazio et al. 1989). For advertisers, attention is difficult to obtain and easy to lose. Angell et al. (2016) refer to Lang's 'Limited Capacity Model of Mediated Message Processing' (2000) which illustrates that when cognition ability is restricted during exposure to a communication message, the ability for retrieval and encoding is diminished. While this is agreed on by other proponents of models concerned with attitude formation (Chaiken 1987; Daniel Kahneman 2011; Petty et al. 2004), Lang (2000) details this aspect. Persuasion occurs when attitude change or formation is triggered by a direct response to a message charged with information (Hassan and Michaelidou 2013). Persuasion itself is

the core goal of marketing practice as most communication is designed to develop and or maintain positive attitudes toward the offering brand, or otherwise, create negative attitudes toward competing offers. Marketing rules apply to most social areas of our lives.

Considering the highly competitive arenas of current marketing environments, pre-emptive action in implementation of resistance to attitude change offers a sound approach. In a game of football, some players will fake injury or bend the rules to get awarded penalties or advantages. Though these are risky strategies, they do at times pay off, one only needs to look at Maradona's 'Hand of God' goal in the 1986 Football World Cup. The game of business is no different, with many companies and individuals taking questionable approaches to achieving their goals. One such strategy that had gained steam in the early 2000's was disguising advertising as print news stories, a practice unregulated for several years. This advertising style is not only frowned upon for ethical reasons but has also become far less effective compared to when it was first implemented, as consumers have wizedened to the advertising method.

Though policy and law makers have come to require sponsorship of news articles to be noted and far more transparent, in more recent times this strategy has increasingly found its way into video content. Gaining great controversy, special interest groups have been found to be the sources behind hit pieces disguised as parodies. The 'YouTube Penguin Army scandal' is an example of such a case where Al Gore's 'An Inconvenient Truth' documentary on climate change is spoofed in a video. The alarm bells leading to controversy over the video were not due to Al Gore's work being attacked, critiqued, or made fun of, but rather over the identity of the video maker. Originally, the creator of the video spoof claimed to be an amateur producer however, the real identity of the video makers turned out to be the DCI Group, a public relations and lobbying organization whose largest client was Exxon Mobil. The video was not an innocent comedy sketch but rather focused propaganda. Interested in providing a pre-emptive resistance to such

disguised propaganda efforts, Lim and Ki (2007) treated subjects with attitude inoculation designed to aid identification of manipulative video content. Findings showed that attitude inoculation treatment was successful in instilling attitude change against a parody video (Lim and Ki 2007). Participants receiving either attitude inoculation treatment or post-hoc refutation toward parody videos demonstrated a heightened sense of detecting unfair manipulation and a more negative view of sponsors of such videos.

Dubious approaches to persuasion strategy and universally undesirable behaviour manipulation can be found in many forms and across any industry. A current concern is high profile videogame companies such as Valve and Electronic Arts having introduced loot boxes in their games. These loot boxes often contain cosmetic and or 'pay to win' in-game items and may be opened or purchased with real world currency. As of this writing, the Belgian Gaming Commission has deemed some in-game loot boxes to be classified as illegal gambling (O'Connor 2018), while ongoing court cases are under process around the world. Though some of the games are rated 18+, there are few measures to stop children from partaking. Furthermore, would be users are shown no alerts alluding to the gambling nature of the loot-box system. The case of loot boxes presents a real-world occurrence which highlights the value of pre-emptive action afforded in particular by a strategy such as attitude inoculation treatment.

Scholars and marketers have suggested the increased application of evaluative conditioning. An example of its use is the placement of disgusting images on cigarette packages. Though this has been shown to be effective in deterring non-users, it has not had the same impact on users (Shaw et al. 2016). Scholars have suggested a similar evaluative conditioning technique be used to lower soft-drink consumption. When shaping an inoculation treatment for marketing purposes, practitioners should evaluate key potential attacks. As mentioned when discussing message framing, it is also necessary to examine how different segments respond to a message (Kelly and Garcia 2009). I propose

attitude inoculation as a more effective, non-intrusive approach to developing and maintaining socially favourable attitudes within a marketing environment. This study seeks to identify evidence supporting or debunking this overlaying assumption.

4.1.3 COMPARATIVE ADVERTISING

Comparative advertising is advertising which employs a direct contrast between similar brands or offerings. This is seen across all industries as comparative advertising has been sought as effective in damaging the image of competitors (Bobi Ivanov et al. 2009). In most countries, comparative advertising is not only allowed, but even encouraged (within the bounds of libel law). When considering methods of increasing loyalty and reducing people's natural instinct to seek variety, scholars recommend marketers engage in comparative advertising (Jensen and Hansen 2006). The first push for comparative advertising is accredited to the Federal Trade Commission, which found comparative advertising as a method of improving access to information which may be of potential value to consumers. In today's markets, consumers expect at least a satisfactory level of quality from well-known brands, with similar performance between offerings from companies. Because of this expectation, learning about the brands is not seen as being important. Heath (2001) notes this as a cause of brand decisions generally made through peripheral processing due to the low motivation in processing most advertising appeals.

All the previously mentioned attitude manipulation techniques (conditioning, supportive therapy etc.) can be, and are, applied in attempts to resist comparative advertising attacks. Another popular method is comparative advertising itself used as a return-fire strategy against a comparative attack (Bobi Ivanov et al. 2009). All these strategies, though somewhat helpful, do have drawbacks. The primary shortcoming of many strategies is the inability to protect against unforeseen attacks. Attitude inoculation, through forewarning mechanics (Compton et al. 2016), does not fall short in this manner.

Not only does inoculation treatment aid in countering future and unforeseen attacks, but also provides a 'halo-effect' (Kelly and Garcia 2009; Parker et al. 2012) where people exposed to inoculation will also be more resistant to future attacks with different elements.

For example, if a person receives an attitude inoculation treatment to maintain favourable attitudes toward Coca Cola, not only will they be more likely to resist attacks from Pepsi, their direct competitor, and other soda brands, but there is also a higher probability they will now be inclined to resist attacks from any beverage offering, from juice to the likes of beer. This is accredited to the defence building practice derived from the counter arguing quality of attitude inoculation leading to supporting of the existing attitude (McGuire 1961). The 'blanket protection' offered uniquely by attitude inoculation has the potential to help people resist sneak attacks. When thinking of beer and wine advertisements, it is common for advertisers to highlight the origin of the products (the country, county, or even specific area). This is generally done to trigger anchoring in consumers where, if the reputation of the location is favourable, the association with the given product will also create favourable response (Heath 2001; Daniel Kahneman 2011; Petty and Cacioppo 1996). A wine advertisement using comparative advertising may not attack their primary competitor's brand, but rather question the quality of wine production of the location of the competitor. After all, although French wine has a long history, none can compare with production from the rich nutrient vineyards of New Zealand's Marlborough Sounds...

4.1.4 WORD OF MOUTH

The ability of an advertisement or marketing campaign to generate positive word of mouth is a highly sought-after effect. This occurs when a communication effect successfully reinforces an attitude, increasing the perception of attitude correctness (Cheatham and Tormala 2015). While the initial advert exposure is generally great for creating topic awareness and provides opportunity to create associations or evoke emotional response, successful stimulation of word of mouth offers additional advantages. Day (1971) outlines the new message source is seen as more trustworthy (largely because word of mouth is spread by people familiar with each-other), the communication becomes two way, offering the ability for discussion and clarification. Additionally, word of mouth interaction also provides opportunity for social support. An interesting finding is that friends and family are more willing to offer advice on low-risk products. This is due to consequences of the advice followed being less likely to impact the relationship. When loyalty is shown toward a brand, the customer will be more likely to express positive word of mouth while also having more resistance to counter offers (Jensen and Hansen 2006).

As discussed in Chapter Two (2.17 Communication), not only is attitude inoculation a favourable method in reducing or outright stopping the harm resulting from negative word of mouth, but inoculation also has the potential to spread from treated persons to people that had not received the inoculation from the original source. Because a property of inoculation is increased effectiveness of the treatment as participation of the message receiver intensifies, word of mouth offers the speaker a mental rehearsal of the attitude arguments, thus strengthening the attitude in their own mind, as well as making a public statement of their attitude thus strengthening it even more.

4.1.5 SLEEPER EFFECT

In exploring the longitudinal effects of inoculation there is potential for arguments to be influenced by the effect of passing time itself, influencing the “no inoculation” argument control group as well as effecting the various inoculation treatments. One such effect of passing time which is yet little understood is the sleeper effect. Though the sleeper effect has evidence supporting its existence, its operation is subtle. As various research methodologies have been used in its measure, there has been a failure in achieving a consistent capture of the effect (Banas and Rains 2010) (Capon and Hulbert 1973).

Weinberger (1961) describes the ‘sleeper effect’ as a general term used to describe instances where attitude changes are greater when measured after a delay than when measured immediately after an exposure to a communication. The effect may also occur when despite exposure to contrary information, attitudes toward a persuasive message increase in favourableness over time. The effect can be found when a measure of attitude occurs immediately after an exposure and again, remeasuring after some time is allowed to pass (Capon and Hulbert 1973).

Four primary criteria have been identified in conditions leading to a higher likelihood of manifestation of the sleeper effect (Hannah and Sternthal 1984). First, a message with a strong initial impact on attitude is needed. Second, people need to be exposed to a discounting cue that inhibits immediate attitude change. Thirdly, a separation must be present between the discounting cue and the message over time. Finally, a rapid dissociation of the discounting cue and message, giving the initial favourable message a longer lasting impact. In instances where a group changes attitude over time without new stimulus, the yet little understood sleeper effect may be at play.

4.2 FRAMING

The experiments conducted engage the use of attitude inoculation under different framing contexts. The first series of experiments engage the use of inoculation in a medical setting, while experiments four and five make use of a scenario concerned with employment. The various framing topics are used primarily to provide realistic, engaging scenarios for the participant groups.

4.2.1 MEDICAL CONTEXT

It is not uncommon for a marketing campaign to fail in effectively communicating its intended message, nor is it uncommon for a campaign to fail regardless of successful message communication. In worse cases, campaigns can even cause behaviours that they try to prevent (Fishbein et al. 2002; Guttman, Kegler, and McLeroy 1996). A campaign may not even fail due to its message, but rather fail due to unintentionally evoked reactance, such as fear or perceived threat to a non-related issue (Richards and Banas 2015). While a failed persuasion campaign generally has undesirable consequences, when people's well-being, general health and even lives are dependent on successful persuasion then the need to execute a successful campaign is dire.

The decision to present my research under a health marketing context is due to attitude inoculation having been found to be a highly applicable strategy under health marketing conditions (Godbold and Pfau 2000; Matusitz and Breen 2010; Richards and Banas 2015). In the health sector, communication theory is important in developing better understanding of patient's behaviours, attitudes, and beliefs. Successful communication instating and maintaining favourable and beneficial attitudes is a necessary and highly desirable pathway into encouraging prevention, treatment, understanding, management and recovery from health problems. This can be executed through interpersonal, intrapersonal, organizational and mass communication methods (Kenzie 2008). Many

health problems, such as obesity, diabetes, sexually transmitted diseases and substance abuse rely on patients' attitude and behaviour as part of the treatment process. Though attitude inoculation may be applied to maintain positive attitudes toward treatments, the function of attitude inoculation has an even more promising application as "preventive medicine" (Matusitz and Breen 2010; Yu and Zhu 2016).

Attitudes toward one's health are naturally of undoubtable bias. The problem from this bias is when comparing ourselves to other people, most of us believe that we are less likely to encounter health problems (Amuta et al. 2016). This in turn causes bigger issues, as one's attitude alone is the greatest tool in prevention of health problems as well as an essential component of the treatment and recovery processes (Cancela et al. 2016; Compton et al. 2016; Yu and Zhu 2016). The attitudes we have toward health and wellbeing do not only affect us as individuals. In 1949, the United States saw the last outbreak of the destructive Smallpox virus. Though this virus had known no prejudice, it was most common in young children, leaving many of those lucky enough to have survived crippled and dependent on lifelong treatment and aid.

Though inoculation through vaccination was what successfully defeated the virus through prevention, resulting in its official state of worldwide eradication in 1980, before any vaccination was ever administered, it was attitudes that had to be shaped. Parents were asked to allow doctors to inject a weakened version of the virus into their children. At that time, the fresh horrors of witnessing so many fall victims to the virus worked as motivation to accept any promising weapon against the virus. Our attitudes effect all those around us, though this virus is no longer a threat, the need to maintain herd immunity through mass vaccination is still necessary to prevent such viruses as well as virus mutations. Parents attitudes in favour of vaccination must be maintained.

Though many 'old world' health problems have been dealt with, new ones have arisen. As our general knowledge and awareness related to our wellbeing and quality of living increase, pre-existing attitudes many of us were raised with must be adapted. Because of new lifestyles that include lower levels of exercise and easier access to various foods, obesity has become one of the main world-wide health concerns and greatest killers. A particular concern of obesity is that it also effects children and propels them toward a future filled with additional health risks. In New Zealand, 1% of children (14 and under) qualified as obese in 2016, an increase of 4% since 2007, while in the United States 17.2% of youth were found to be obese in 2014, an increase of 2.2% from 15.4% in 2006 (Statistics 2016; Trends 2017). Such increases are not unique to these regions, but rather a world-wide phenomenon. Though the general cause is often easily explained, low level of physical activity and high caloric intake, there are many more factors at play, with some simple indirect solutions having the potential to greatly reduce the risk or onset of obesity.

The jobs and lifestyles of big cities do not require as much physical activity as past professions, while the business of everyday life and access to automated transportation have both increased. Particularly interested in childhood obesity, Yu and Zhu (2016) thought of the simple act of getting to school. In the past, far more children walked to school, helping in offsetting dietary shortcomings. Today, this is not as common, leaving Yu and Zhu (2016) posing the question of 'What shapes attitude toward children walking to and from school, and how is this behaviour influenced by these attitudes? Firstly, due to children having limited freedom, it is primarily the parent's attitudes that result in how their children travel to school, then followed by the children's level of enjoyment for the activity. By creating clean and safe walk paths to schools, adding supervision or surveillance and addressing social barriers such as stigma toward not using a motor vehicle, parent's attitudes can be shaped to favour allowance of their children walking to school. In turn the

improved environments and accessibility can enthuse the children in choosing to walk to school.

As any dietitian or trainer would say, positive attitudes are essential for our general physical well-being (Berry 2016). A gym membership is much more likely to help shed the pounds if our attitude toward fitness is positive. In the same sense, knowing how to diet isn't the same as having a positive attitude toward dieting. Wood et al. (2014) conducted studies questioning subjects' attitudes toward healthy eating. Given the choice in snack after this questioning, most subjects made a healthier eating choice. This positive behaviour was directly mediated by attitude accessibility. Simply questioning an attitude has been shown to result in behaviour. Similarly, the simple attitude against cigarettes and never taking up the smoking behaviour greatly increase one's chances of a longer healthier life (Levy and Abramowicz 2016) The same is true for all risky behaviours, where having a better perception of risks results in an increased development of attitudes against risky behaviours.

The medical world does not only battle with attitudes of patients, but also the attitudes of society toward illnesses, treatments and often, those who are sick (Yeh and Jewell 2015). Even today, especially in less developed areas of the world, there is great prejudice against people suffering from mental illness or physical deformities. Medical practitioners must turn to marketers to challenge and change attitudes detrimental to the wellbeing of populations, often fighting against cultural truisms, repeat exposures and endorsed messages by trusted sources. A simple example of attitudes effecting health and recovery is patients' (and patients' families') attitudes toward taking their prescribed medication, exactly as prescribed. Another example is the complex ongoing battle in changing attitudes toward smoking.

Negative attitudes alone are even a major factor in the development, maintenance and even nurture of mental illness such as depression (Romero et al. 2016). When looking at patients with MDD (Major Depressive Disorder), Romero et al. (2016) found evidence that implicit, negative self-esteem is concurrent with explicit self-esteem. However, explicit self-esteem is most related to the maintenance of depression. Mulligan (2011) clarifies the conscious intent property of explicit memory being a primary function impaired by depression. Through using Skin Conductance Response, Packard et al. (2014) conducted tracking of fearful memories in attempt to gain insight into the lasting effects of Post-traumatic Stress Disorder. Findings indicated that only implicit memories have long-term detection, at least using this method. Though traditional therapy focuses on rethinking explicit negative thoughts, it appears inoculation may be the right tool in simultaneously fighting implicit effects of depression and other mental illnesses. The self-evaluative nature of inoculation therapy, along with its participation element strengthening the effectiveness of inoculation, may prove attitude inoculation to be a superior treatment approach.

Strictly from a marketing perspective, this research may potentially encourage marketers to employ attitude inoculation in their strategy, provide insightful information on the use of booster messages, give insight on the application of strong or weak attitude inoculation treatments (depending on the desired effect) and enrich the understanding of the longitudinal properties of such campaigns. Finally, inoculation campaigns may be most useful to public service campaigns which focus on maintaining favourable attitudes. Should inoculation strategies be chosen, there will not be the need to rely on fear marketing campaigns, which often carry deleterious, spill-over, effects for those not directly their target market and adverse effects such as feelings of disgust, sadness and anger and motivational resistance through bias processing or avoidance for those that are targeted (Shen 2015). Attitude inoculation campaigns will be more suitable for larger audiences, and be much less likely to be perceived as threatening (Abril et al. 2017; Glock et al.

2012). This will result in fewer people switching off or resisting a counter message and will mitigate the strengthening of unfavourable attitudes. In addition to the subject matter being familiar and allowing participants to become invested, the testing of attitude inoculation within medically framed marketing scenarios also provides demonstrable application for practitioners interested in the topic.

4.2.1A SMOKERS AND TOBACCO

The first experiment used in this study tests the effectiveness of attitude inoculation on a group of smokers. Smokers were chosen to replicate the conditions and scenario of the attitude inoculation study I had conducted for my master's thesis (Gadiuta 2015). This replication would allow for direct comparison of the effect of inoculation with similar conditions, framing and subject group. I have also chosen to test inoculation on smokers as tobacco use is the world's biggest killer. More than 88% of adult smokers who are actively consuming cigarettes started consumption before the age of 18 (Andrews et al. 2014). Certain groups can hold deeper common attitudinal stances. Smokers for instance, have been found to be higher risk takers than non-smokers (Jenks 2001). Both smokers and non-smokers alike are generally aware of the consequences and risks of smoking. It is not that smoking itself causes one to be less cautious, but rather, persons who minimize their perception of risk resulting in personal harm are more likely to ignore the negative consequences of smoking (Popovac, Mwaba, and Roman 2011).

In their 2000 study, Godbold and Pfau showed attitude inoculation to be an effective method in maintaining favourable attitudes against alcohol consumption, successfully resisting a future persuasion exposure. Parker et al., (2012) went on to prove attitude inoculation as a working method in providing an overall blanket protection toward domain-related issues. Inoculation applied to maintaining positive attitudes toward condom

use was found to have also strengthened attitudes against other similarly risky behaviours such as binge drinking (Parker et al. 2012). Such studies present irrefutable evidence of the successful application of attitude inoculation campaigns, not only within a health context, but also for nurturing favourable public opinion toward social issues.

Tobacco consumption not only leads to general health decay but also to health problems that, although not deadly, can drastically reduce the quality of life a person will experience. One such by-product of smoking is the relatively rapid degeneration of dental health (Ditmyer et al. 2013; Hanioka et al. 2013). This worsening of dental health is a common indicator of poor health. Even though dental health does not pose danger to others and outside of severe cases, does not debilitate the sufferer drastically, people with poor dental health experience varying degrees of social stigma. Because smoking is a well-established accelerator of poor dental health, standard products have been repurposed to better fulfil battling the direct effect of smoking. Special brushes, toothpastes and oral cleaning products made particularly for smokers are commonplace. The common problem of dental health shared by most smokers allows for realistic and relevant scenario building which subjects would not only understand, but also easily envision themselves in, motivating more engaged participation in the experiment.

With large advertising budgets, tobacco companies have promoted smoking in positive ways for decades. Though the popularity of smoking has decreased, especially in affluent areas, many social groups are still at high risk of starting to smoke or continue being frequent consumers (Hoek and Smith 2016; Popovac et al. 2011). Attitude persuasion is the key piece in the battle against the monster that is the cigarette. Smoking is not only detrimental to the individual, but also affects others. Second-hand smoke is very undesirable and problematic, while the health system worldwide is under heavier load due to smoke induced health conditions. Worldwide, tobacco use is the leading cause of preventable death (Ditmyer et al. 2013).

To combat smoking, governments, local health authorities and advocacy groups have passed laws restricting the advertising of tobacco and also used advertising appeals to counter the messages promoted (past and present) by the cigarette companies. Current anti-smoking campaigns are largely based on taxation or fear appeals. Lessening the availability of cigarettes through increased cost and discouraging smoking through social-norm intervention messages helps deter smokers and casual smokers (Choi, Choi, and Rifon 2010), yet such strategies come with hidden cost as persons addicted to smoking, especially those in socio-economic groups feel burdened and uncared for while experiencing increased financial strain and pressures on their freedom as a result of cost based anti-smoking legislation (Hoek and Smith 2016). Though the desire to quit is present, when cigarette cost increases, most smokers will reduce their spending on other products to maintain their smoking habit. In turn, fear appeals create mixed results. While some report intent to quit, others discredit messages that cause emotional discomfort through methods such as humour or bias reasoning. Some smokers simply turn to avoiding fear inducing message appeals altogether (Abril et al. 2017; Hardcastle et al. 2015). Scholars plea for a different approach, largely advocating for more personal, all-inclusive, emotional appeals and increased focus on education targeting influential persons such as dental students (Hanioka et al. 2013; Thompson, Barnett, and Pearce 2009)(Thompson et al. 2009).

The health message marketing scenario I am initially presenting is identifiable as one of high real-world value, as smokers face greater health risks and lower life expectancy as a direct result of their smoking (Ditmyer et al. 2013; Levy and Abramowicz 2016). The intended setting and health message framing along with the use of novel information will evoke stronger reactions to the subject matter, turning this into a higher-involvement scenario (Millar and Millar 1990). Based on the well-documented increased dental health and hygiene needs of smokers (Ditmyer et al. 2013), as well as a common

real-world use of dental hygiene products specially designed for smokers, my study is able to present a targeted scenario where subjects will more easily engage with the topic (Kim et al. 2008), meeting the ambitions of this research.

4.2.2 EMPLOYMENT CONTEXT

Though most of the inoculation studies to date can be criticized for only using student participants (Banas and Rains 2010), doing so allows researchers more control over experiments as the participants can be more readily reached. This especially holds true when considering limitations of longitudinal studies, such as high drop-out rates and lowered control over re-test periods. As experiments One, Two and Three set out to explore the effectiveness of inoculation with more diverse participants, experiments Four and Five require even more control as the element of booster messages is explored, thus the use of student participants is more fitting. As the participant group is changed, it is fitting to also change the scenario framing to one more relevant to the participants. As explained in Chapter Three, Section 3.3, subject relevance is of high importance when applying inoculation. A higher relevance is necessary in order to ensure a higher level of participant engagement (Karani and Fraccastoro 2010; Petty and Cacioppo 1986), which is an essential factor in the success of inoculation treatments. The topic of employment was thus decided upon as it holds high relevance to students. In the final scenario used in

5. CHAPTER FIVE: RESEARCH QUESTION AND HYPOTHESES

Chapter Five outlines the hypotheses that are the basis of this research. The hypotheses presented have been derived from a deep exploration of current literature concerned with attitude theories. Key principles of attitude theories, bringing a focus to attitude inoculation have been discussed in Chapter Two, while Chapter Three presented

the rationale behind the choice of testing and the framing used, as well as identification of moderating and mediating factors.

5.1 CONCEPTUAL FRAMEWORK AND THEORETICAL MODEL

The research questions in this thesis revolve around testing, understanding and extending the basic (and counter-intuitive) idea that a weaker counter-argument provides a stronger long-term support of purchase intent in the face of an attack on an existing attitude than does a strong argument. A major aspect of this is to establish the roles of cognition and emotion as the underlying drivers of the effect. A second set of research questions attempt to place boundary, or moderating, conditions around the effect. The potential moderators of interest as detailed in Chapter Three are: Time, in the form of the longitudinal effect of attitude inoculation treatments, purchase intent is interpreted by the likelihood a research participant will show intent to stay with an original brand presented in the scenarios. Relevance of the topic in experiments one, two and three is determined by the smoking frequency and quantity reported by each participant. In experiment four and five, relevance is determined by the importance of the topic as rated by each participant.

Biological gender identifiers of male and female are used to understand any different physiological responses as determined by emotion and cognition reported, identifying potential differences in response to attitude inoculation treatment. Age, income and education are also explored as moderating factors.

The research questions formed by addressing these moderating factors are addressed through a series of experiments, defined in Chapter Six, Research Methods. In turn, the following chapter, Chapter Five, details the research questions and hypotheses of my research.

5.2 PRIMARY HYPOTHESES

The following section highlights the principle subjects with potential influence over attitude inoculation. While these subjects have all been discussed in detail in Chapter 3, in this chapter, Chapter 5, the subjects are readdressed to form primary hypotheses proposed in this thesis. The topic areas studied in order to develop the primary hypotheses are message strength, time, measures of the encoding processes, message relevance and booster messages.

5.2.1 MESSAGE STRENGTH

When concerned with increasing the persistence of counter-arguing, Pfau et al. (2006) share two primary factors; inoculation message type (inoculation-same or inoculation-different), and the use of booster messages. I suggest that there is at least a third primary factor, inoculation argument strength. This thinking is influenced by considering the implications of two systems of processing presented by Daniel Kahneman (2011) and the Elaboration Likelihood Model of Persuasion (Petty and Cacioppo 1986).

While longitudinal studies of attitude inoculation have traditionally not allowed long periods of time to pass between testing, newer studies that allocated more time between testing (Pfau et al. 2006) have not considered inoculation treatment message strength, and as a result I argue they may have thus come to inaccurate conclusions. For example, Pfau et al. (2006) reports only 'inoculation-same' messages evoked immediate significant counter arguing output, while 'inoculation-different' messages showed less decay over time. It is then concluded that attitude inoculation is stable in subsequent days, with inoculation-different arguments (inoculation aimed at maintaining an opposing view to an exposure (e.g., people against marijuana legalization being inoculated to maintain this attitude) being superior in the long-term. Based on the findings of my previous research (Gadiuta 2015) showing that strong attitude inoculation is highly effective but quickly falls off, it may be that Pfau et al. (2006) may have unknowingly used strong arguments for the

'inoculation-same' group and weak arguments for the 'inoculation-different' treatments. Though the stance on framing having the longitudinal effect may be defended by saying that people are generally more motivated to maintain negative views (Tormala 2016), I argue if this was the case, then 'inoculation-different' treatments should have also had immediate counter-arguing output, not just long term strength.

The environment in which a message is digested must also be taken into consideration. While Petty and Cacioppo (1986) present strong messages as being more effective in producing higher rates of agreement, this is only true if the messages can be sufficiently processed. In common marketing environments, constant distractions lessen the likelihood of total processing, thus it remains plausible that the ability to more easily process weak messages enables weak arguments to get through, while strong arguments are not totally digested (Bither et al. 1971; Lemanski and Lee 2012), making them less memorable. In a previous study where I tested attitude inoculation message strength (Gadiuta 2015), I had found strong attitude inoculation treatments to be highly effective immediately after the exposure.

Loyalty Over Time Strong vs Weak Inoculation

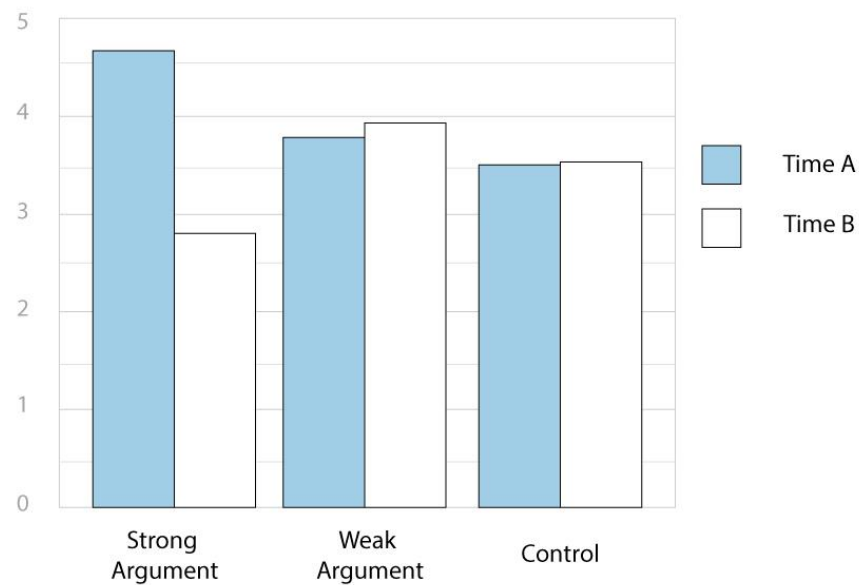


Figure 5.2.1-1 – Argument Strength (Gadiuta, 2015)

Attitude inoculation argument strengths (Gadiuta, 2015)

In this previous study, as visualized in figure 5.2.1-1 the strong counter-argument group was initially found to have a mean score of 4.5, 0.9 higher than the control group ($t = 4.2, p = < .001$) and 1.1 higher than the weak counter-argument group (3.4). Re-testing of the message strength allows for validation or rebuttal of this previous work. The workings of attitude inoculation counter argument strength becoming better understood, aids in appropriate message strengths applied to campaigns. For instance, determining the effectiveness of argument strength can lead to better design of campaigns that have various aims of post inoculation talk (Compton and Pfau 2009). Practitioners with such knowledge can then more accurately determine the appropriate inoculation message

strength, dependent on the desired outcome of campaigns. Based on inoculation message strength alone, the following hypothesis is presented:

PH1: Immediately after an inoculation treatment, a stronger inoculation argument generates more purchase intent than a weak inoculation argument.

5.2.2 TIME

The pattern of effect noted thus far in the current available literature is mostly limited to a two-week period (Banas and Rains 2010). Though not statistically significant, the meta-analytic findings of Banas and Rains (2010) allude to the effects of inoculation decaying after a period of 13 days. This is a contentious timeframe and as such has led to a 12-17 day timeframe being used in experiment two. The flexibility in time, six days, rather than a strict time response of exactly 13 days is allowed as the first series of experiments used panel data with limited control over re-testing completion and a subsequent high drop-out rate. The panel data was essential to allow for a representation of the general public and access to participants who were smokers. In experiments four and five, where the subject matter changes and student participants are used, a strict retest time of 14 days was applied. The 21+ day timeframe of experiment three was introduced in order to explore what effects of inoculation persist, if any. This timeframe was decided upon after calls from scholars to extend the longitudinal measure of inoculation (Pfau et al. 2006). Again, as panel data was used, strict timeframes could not be applied due to increasing drop-out rates occurring alongside increases in the retest timeframes, thus a generalized timeframe allowance was used allowing 21-31 days.

The emotion/cognition explanation of the efficacy of weak or strong arguments is again enhanced if the variables are measured both in a “before and after” situation immediately after the initial counter-argument has been made and then again after various

laps in time. The counter-arguing process takes place internally, in one's own mind. Considering individual variations in this process, to insure that the inoculation treatment was successfully processed and activated, a delay in measure is necessary (Pfau et al. 2006). A delayed testing post inoculation helps to determine not only the various longitudinal effects of inoculation, but also how an individual is likely to process the treatment over time. The following hypotheses are presented in relation to the effects of time on attitude inoculation:

PH2: After a short time (12-17 days), the weak argument will become more effective than the strong argument in terms of purchase intentions.

PH4: Any initial purchase intentions will have disappeared after a longer time frame (21+days)

5.2.3 ENCODING PROCESSES: INTENT, COGNITION AND BEHAVIOUR

In this thesis research, the dependent variables assessed include cognitive and emotional framing, enriching measurable elements of this research (Brinol et al. 2006; Mayer and Tormala 2010). The difference in cognitive and emotional response can be used to assess not only the effects of inoculation, but also the framing mechanisms driving inoculation and outcomes such as the halo and sleeper effects. The halo effect found to be produced by attitude inoculation may be the result of self-guided Socratic processing. Analysing the work of McGuire (1960), it is plausible that attitude inoculation triggers explicit processing in the face of arguments. Because the subject is inoculated and has the ability to resist a wider scope of attacks, the successful defence of attitudes, in turn, leads to strengthening the attitudes. As these attitudes are held longer, they are then likely to become implicit, leading to predictive behaviour and aligned, automated, responses in reply to peripheral cues. It is also sensible to presume longitudinal limitations with implicit

memory eventually being overtaken by the sleeper effect in the absence of practiced memory retrieval. The sleeper effect is a greater change in attitude after a longer time delay (Weinberger 1961). This is especially likely in the presence of a strong initial message impact and exposure to a discounting cue as in the scenarios used in the experiments conducted, particularly applicable to the no inoculation control groups. The following hypotheses have been developed when considering the encoding processes:

PH3: After a shorter time (12-17 days), emotions generated by inoculation arguments will fade more swiftly than cognitions.

PH5: In the longer term (21+ days), both weak and strong inoculation treatments will be less effective than no inoculation in terms of maintaining cognition or emotion.

5.2.4 SUBJECT RELEVANCE

As participant involvement is a great indicator and, arguably, even a necessity for the success of attitude inoculation treatments, this thesis study seeks to conduct a comparison between participants with lower subject relevance and those with higher subject relevance. In the case of this research as relevance and frequency of use are both suitable measures (Karani and Fraccastoro 2010; Petty and Cacioppo 1986), the subject relevance is to be determined by smoker frequency, with two groups being formed, low frequency smokers and high frequency smokers (discussed further in Chapter Six 6.7). As discussed in Chapter Three (3.3), according to Petty and Cacioppo (1986) experience gives message receivers more pre-existing anchor points for quicker message evaluation.

Of course, as the subject matter increases in relevance, so too does the motivation for one to engage with the topic. As motivation is a primary mediator in attitude

change, I expect that differences would be found in the workings of attitude inoculation treatments between a group holding low subject relevance, compared to a group for which subject relevance is high. Based on the literature concerned with subject relevance discussed in Chapter Three as well as the nature of attitude inoculation discussed in Chapter Two (2.15) the following hypotheses have been formed:

PH6: Higher subject relevance will amplify the effects of inoculation on purchase intent over time, making a weak inoculation the most effective long-term treatment.

PH7: Higher subject relevance will amplify the effects of inoculation for emotions and cognition

PH8: Increasing subject relevance and enhancing the delivery medium will improve the effectiveness of both weak and strong inoculation arguments in terms of purchase intent.

PH9: Higher subject relevance, presented through enhanced delivery, will stimulate maintenance of more favorable cognition and emotion in response to inoculation treatments

Note: “enhanced delivery” is explained when the research methods are described, but basically an advertisement rather than a scenario is used.

5.2.5 BOOSTER MESSAGES

As highlighted in Chapter Two, under the headings of 'Booster messages' and 'Timing', early inoculation treatment testing has not allowed sufficient time to pass between testing and re-testing periods (Pfau et al. 2003). While the research conducted in this thesis has committed to testing the effectiveness of various time delays in testing, the working of attitude inoculation is again complicated by the addition of the concept of booster messages, where arguments are re-introduced after a short time.

In real-world scenarios, it is likely that once exposed to a communication message (with or without inoculation treatment), a person will later come to be exposed to some sort of booster. Consider having seen a television advert for McDonalds. With the amount of McDonalds restaurant locations, it is likely that you will inevitably come across the golden arches which work as boosters for the advertisement. Depending on the attention a stimulus is afforded, the second, briefer exposure may be more effective in driving your attitude (Fernandes 2013; Haugtvedt and Wegener 1994), leading to a purchase-making decision. As noted in Chapter Two booster messages can even manifest from exposure to some coincidental catalyst, exciting various emotional responses which, in turn, happen to be associated to the original stimuli. In the body of literature available on the topic of attitude inoculation, there has been very little exploration afforded to the implication's booster messages may have on attitude inoculation treatment.

PH10: A booster message will improve the effectiveness of inoculation
treatments on purchase intent

PH11: A booster message will stimulate more favorable cognition and emotion
in response to inoculation treatments

5.3 SUBSIDIARY HYPOTHESES

The subsidiary hypotheses presented in this research are based on potential moderators as suggested by the literature on attitude and attitude inoculation, as discussed throughout Chapter Two and Chapter Three. The moderating factors presented – gender, age, relationship status, income and education – have been determined to be likely influencers of the effectiveness of attitude inoculation treatment process and in the effect of attitude inoculation over time. Such demographic characteristics often influence intentions and behaviour indirectly. Populations divided into subgroups have various life experiences, resulting in members holding different attitudes and beliefs (Fishbein and Ajzen 2010). These subgroup differences may often result in different responses to persuasion attempts as well as to methods of persuasion resistance such as attitude inoculation.

5.3.1 GENDER

A common viewpoint is that women are more likely to respond emotionally. As discussed in Chapter Three under the Gender heading (3.5), Fisher and Dubé (2005) argue it is not that men are less emotional than woman but rather that men are less likely to express emotions, especially ones that aren't stereotypically socially favourable of masculinity. Because of the anonymity afforded to participants in the online survey studies this research is based on, it is expected those participants were able to provide more truthful answers. As men and women are also said to process messages differently (Amuta et al. 2016), it stands to reason that the processing of attitude inoculation may also be different.

SH1. Males and females express the same pattern of intent generated by inoculation.

SH2. After inoculation, males will maintain more cognition over time than females.

SH3. Over time, females will have a more favorable emotional reaction than males after exposure to either weak or strong inoculation treatments.

5.3.2 AGE

As outlined in Chapter Three, age is a primary segmentation marker. Clear differences between older and younger people's attitude formation and consumer behaviour have been well documented by scholars. Some long-held notions remain true and supported by research. Such a truism is that younger persons are more susceptible to attitude change with the effect lasting well into young adulthood (Krosnick and Alwin 1989). At the same time, healthy aging contributes to a deterioration of explicit memory capacity (Mulligan 2011), resulting in people being more reliant on long held implicit beliefs and attitudes. The general outcome of these combined age-related phenomenon is an increased resistance to persuasion or even self-induced attitude change as people age. To date, there has been no research on attitude inoculation that has examined differences in the response to inoculation based on age.

SH4. Attitude inoculation will be more effective in maintaining purchase intent of older people than that of younger people, both immediately after exposure and in the long term.

SH5. Cognitive responses generated by weak and strong inoculation treatments will be more stable over time for younger participants compared to older participants.

SH6. Emotions will drop more swiftly for older participants than for younger participants, both for the weak and strong inoculation treatments.

5.3.3 RELATIONSHIP STATUS

As outlined in Chapter Three (3.8), relationship status is also often used as a demographic marker. There are also established behavioural differences such as the level of risk taking and health habits that differ between single and coupled people (Kim et al. 2017). As couples are more likely to pursue healthy behaviours (Schoeppe et al. 2018), it is likely that the health framed subject matter of dental care used in the scenario given in this study will resonate differently between single and coupled participants.

SH7: The effects of inoculation on maintenance of purchase intent will be intensified for people in relationships.

SH8: Emotions and cognitions will fade more for single participants than for participants in relationships.

5.3.4 INCOME AND EDUCATION

Those with higher education and or income are likely to be more resistant to social pressure. In terms of compliance, affluence and education positions one to have less influence from sources that offer reward, threaten with punishment, legitimacy power, expertise or referent power (Fishbein and Ajzen 2010). While the experiments conducted in this thesis do not expose participants to social pressure, the emotional responses to inoculation are likely to be influenced by the social expectations perceived by participants, where those with higher education or wealth may respond differently to those of lower education or wealth.

Knowledge is not causally related to behaviour, instead it is related to motivational factors such as attitudes, beliefs and behavioural skills which in turn predict behaviour (Fisher et al. 1994). As income and education are socioeconomic traits used in segmentation of customers in marketing (Belch and Belch 2012), it is of interest to explore whether there are differences in reactions to attitude inoculation treatments based between lower educated and higher educated persons, as well as between lower income and higher income persons. As of this writing, no previous research on the effects of inoculation on these socioeconomic groups has been conducted. Based on the literature discussed in this section and detailed in Chapter Three (3.7, 3.9), the following hypotheses have been formulated regarding income and education:

SH9: Inoculation treatments will be less effective in maintaining purchase intent for higher educated participants compared to lower educated participants.

SH10: Cognitive effects of inoculation will be more pronounced in lower educated participants

SH11: The emotional response to inoculation treatments will fade more severely for higher educated persons than for lower educated persons.

6. CHAPTER SIX: RESEARCH METHODOLOGY

When assessing attitudes, literature to date has generally demonstrated a strong correlation between emotion, cognition and behaviour. This is attributed to the nature of attitude formation embedded in these factors (Ajzen 2005). Two primary attitude measurements techniques are standardized. Direct measurement consists of a subject being asked to self-report their attitudes, generally in response to questioning. The second method, indirect measurement, takes place in order to verify whether self-reported attitudes are indeed the ones held. As previously mentioned in Chapter Two, people do not always have conscious access or the ability to access attitudes. In many instances, persons are unlikely to express attitudes if the environment isn't favourable (Petty and Cacioppo 1996). For instance, a person with conservative political views will be less likely to express their attitudes in a study group consisting primarily of liberals. Such an occurrence can happen intentionally, or automatically. This is due to automated processes such as the desire to fit in with a group or avoid conflict.

6.1 OVERVIEW OF STUDIES

The research presented in this doctoral thesis consists of a series of experimental studies, shown as Figures 6.1.1-2, 6.1.1-3 and 6.1.1-4 in section 6.1.1. The aim is to seek a better understanding of attitude inoculation and the effects of moderators of interest as primarily identified through review of previous literature. These moderators of interest were detailed in Chapter Three, Major Moderators and Mediators of Attitude Inoculation. To measure the effectiveness of various attitude inoculation treatments, a series of longitudinal survey experiments have been conducted. In this series of experiments, the variable 'purchase intent' is referred to as the parameter for reporting the test subjects measured likelihood for staying with the original brand presented in the scenario. This is based on purchase intent responses leading to measurable resistance toward the persuasive argument given by a new competing brand. The studies detailed in this chapter include five separate, unique experiment sessions.

The first experiment is a large-scale survey-based scenario experiment with the purpose of validating the immediate effects and differences between three treatment groups: no inoculation, weak inoculation and strong inoculation. The second experiment is a replication of my previous study on attitude inoculation (Gadiuta 2015). This second experiment aims to confirm the basic relationship between longitudinal effectiveness of attitude inoculation and message strength. Additionally, data aiding in the determination of moderators and mediators discussed in Chapter Three was also collected at this time. The third experiment session uses a new group of subjects, shifting focus to the extended longitudinal effects of attitude inoculation and the impact of reminder prompts, dubbed 'booster messages.' While including all of the identified potential moderators and mediators described throughout this writing and highlighted in Chapter Three, the re-

testing period is extended from two weeks, to four weeks, longer than any other previous study on attitude inoculation that I have found to date.

A fourth experiment session took place, with reduction of the inoculation period back to two weeks. The fourth experiment sought to increase the control over the delivery and retest periods, as well as increasing subject relevance and introducing visual elements through the form of graphic advertisements. The extra control over the delivery of this experiment was afforded as the subject group is composed of students, who were available for timely exposures and measures.

A final, fifth, experiment was also conducted, partially replicating experiment four. The primary goal of this experiment was to explore the effect of a booster message. To accomplish this, the new participants have also had their attitudes measured after the initial exposure, however, they had also been exposed to a booster, one week after the initial exposure, then receiving the final attitude measure after a total of two weeks had passed. The specific method for each study is described in this chapter, along with accurate reflection and definition of research methods used.

6.1.1 STUDY PROCEDURES

Study 1. Preliminary testing 1.

Establishing message strength

This is a preliminary study to confirm that the proposed inoculation arguments differ significantly in strength and to determine if fear is present in either weak or strong argument.

Study 2. Experiment 1.

Inoculation and the immediate effect of message strength

Study two is a larger-scale study that tests the immediate effects of the chosen weak and strong arguments, contrasting the initial differences between the two arguments.

Study 3. Experiment 2.

Establishing the basic relationship

A replication study to confirm that a weak counter-argument serves better over time than a strong in inoculating against attitude change (12-17 days).

Study 4. Experiment 3.

Extending the research longitudinally

A major moderating variable concerns the length of time between the first attitude attack and loyalty retention/change. This study extends the time from the 12-17 day period in the first study to 18-32 days. It utilises measurements of cognition and emotion immediately after the first “inoculation” treatment and at a second testing time between 18-32 days.

Study 5. Underlying mechanismEstablishing an underlying mechanism

This study is run at the same time as Study 2 and Study 3, but adds the “pencil & paper” collection of emotions and cognitions mediating the main effect.

Study 6. ModeratorsChecking for moderators

The first set of moderators are those mentioned in the literature as having moderation potential on the relationship between counter-argument and final attitude formation. These include gender, age, years smoking, income, and education.

Study 7. Preliminary testing 2.

This is a preliminary study to confirm that the proposed inoculation arguments to be used in experiment’s four and five differ significantly in strength.

Study 8. Experiment 4

This is a mid-length inoculation experiment where scenarios are coupled with visual stimuli in the form of graphic advertisements. This experiment is done over a two week period.

Study 9. Experiment 5Extending the research with a “booster”

A second moderating variable of interest is the application of a booster argument after a short period – this study maintains a 2-week delay but applies a booster application of the counterargument at 2 weeks. This study again utilises measurements of cognition and emotion immediately after the first “inoculation” treatment and at the end of the 2-week period.

Figure 6.1.1-1 Study Procedures

Schematic of studies conducted in this thesis paper

DESIGN OF INOCULATION EXPERIMENT 1

Attitude measures taken after each initial exposure.

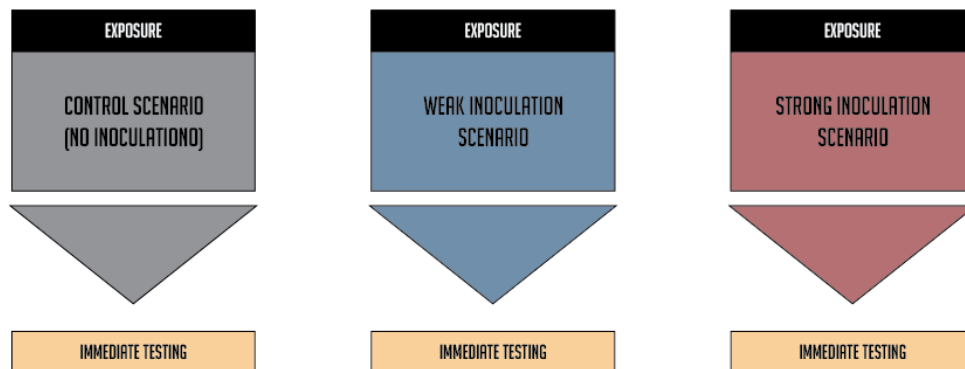


Diagram 6.1.1-2 – Experiment One

Procedure of Experiment One – Immediate inoculation

As outlined in the above diagram (Diagram 6.1.1-2), Experiment One placed participants in three unique conditions, with the focus being on the immediate effects post inoculation. Experiment Two and Experiment Three (Diagram 6.1.1-3) followed the exact same procedure, introducing a time delay. However, these experiments differentiate in the length of the delay between the initial exposure and the reconnect. Participants in Experiment Two were prompted with the reconnect between 12-20 days, while participants of Experiment Three received the prompt for the reconnect 21-32 days after their initial exposure. For both experiments, attitudes of each group (control, weak inoculation and strong inoculation) were measured immediately after the initial exposure. Attitudes were then once again measured for all groups immediately after the reconnect. Experiments Four and Five (Diagram 6.1.1-4) had the duration reduced back to two weeks as based on experiments Two and Three it was determined to be the general timeline of effective

inoculation. Both experiments had an increase in stimulus with the introduction of graphic advertisements and participants responded to the subject matter being of higher relevance when compared to the previous experiments. Experiment Five differed to experiment Four in having the introduction of a booster message at the half way mark.

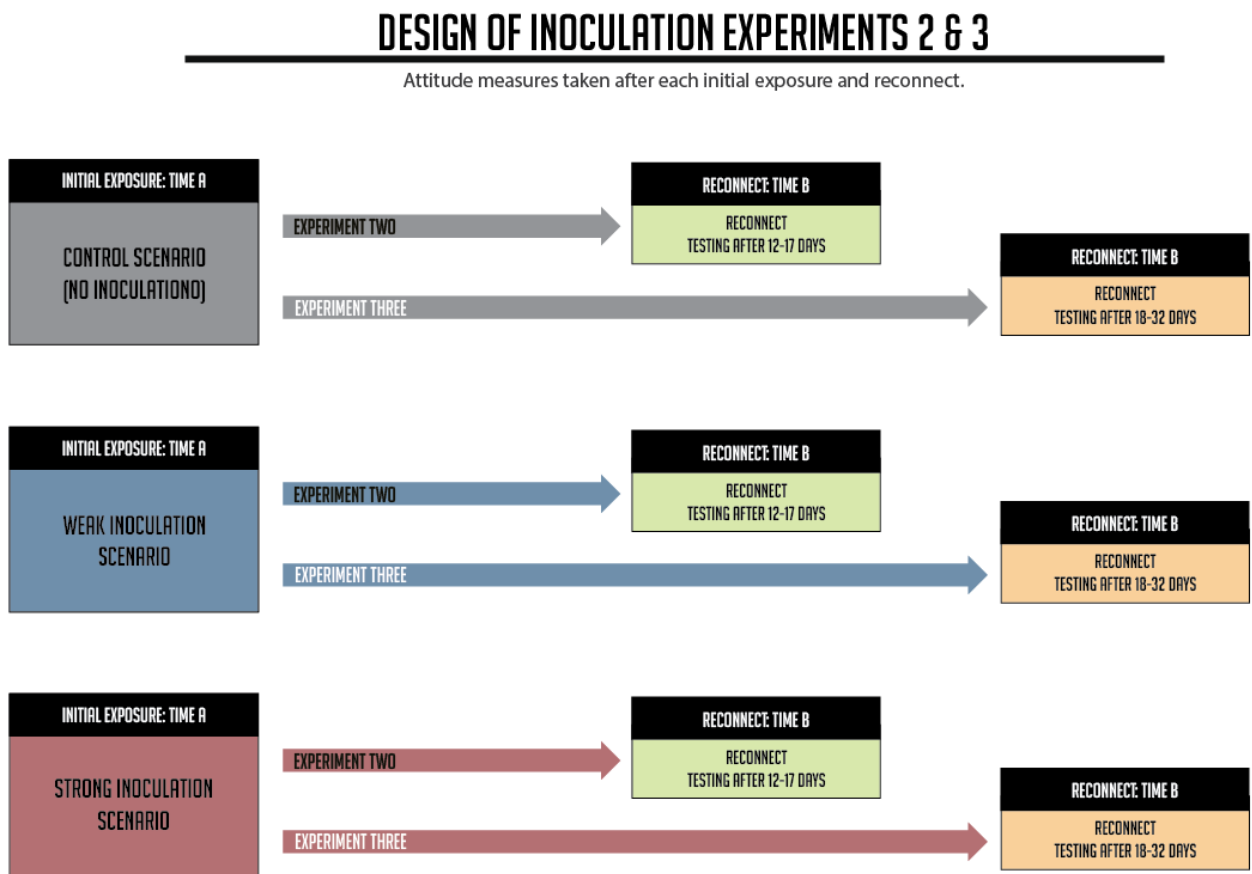


Diagram 6.1.1-3 – Experiments Two and Three

Procedure of Experiment Two and Three

DESIGN OF INOCULATION EXPERIMENTS 4 & 5

Attitude measures taken after each initial exposure and reconnect.

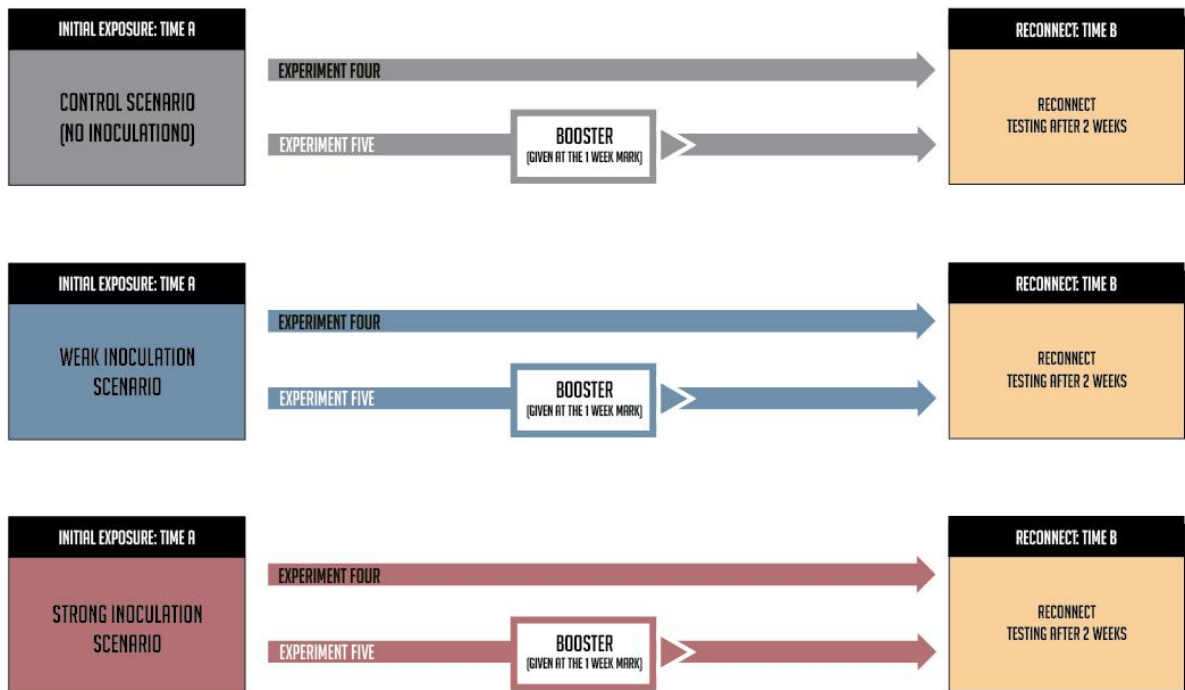


Diagram 6.1.1-4 – Experiments Four and Five

Procedure of Experiment Four and Five

6.2 DATA ACQUISITION TOOLS

Data acquisition was a result of two unique settings. The first experiment was conducted using online questionnaires presented after exposure to a scenario. The second experiment was a series of pen and paper surveys using student participants. The questionnaires used in this research are presented in Appendix Five and Seven. The data acquisition strategies are detailed in the following sub-sections.

6.2.1 SURVEY INSTRUMENT FACE VALIDITY

The measures used throughout the studies found in this research are regularly seen in marketing literature and are presented in a such manner that consumers can easily understand the context by the nature of general usage. To determine however, that indeed the recurring questionnaire is well understood, a face validity test was initiated in order to refine the structure and integrity of the survey. This is done so as to accurately theme the scenarios and questions in line with the marketing context real-world consumers would expect and likely experience in everyday situations. Several independent experts assessed the structure of all components of the survey and base scenario, including reading comprehension and grammatical quality. Any adjustments made were not done so to the degree that any change to the original meanings and intent occurred, maintaining the integrity of the original meanings and purpose.

6.2.2 ONLINE SURVEYING

Through use of the Qualtrics survey service, I gained access to professional survey building software, allowing for robust, real time screening questions, ensuring subjects who do not fit demographic and other criteria do not participate. Another advantage of using an online surveying method is an increase in integrity of answers and less false or meaningless data such as random responses (Beach 1988). The service allows for time restrictions to be placed on survey completion as well as automated and malicious responses. This technology provides reliable indicators of meaningless data, which would otherwise be harder to assess given the large participant numbers (Leiner 2013).

Once the surveys were ready to deploy, I went on to employ the service of two independent panel services, providing access to unique respondents. The first panel service used was Cint Access[®]. Cint was used to collect data from participants based in

the United States of America. While the data collection was partially successful, due to difficulties with survey deployment resulting from the high drop-out rate due to the longitudinal nature of the experiments, more respondents were needed. While the data was incomplete, I was still able to use this as a confirmatory supportive study. This data is thus used for Experiment one, which was designed for the testing of immediate differences between a weak and a strong inoculation treatment, with the goal of establishing which of the two arguments are most effective immediately after the respective inoculation treatments are administered.

In order to collect the data necessary for Experiment's Two and Three, the first of the longitudinal studies, I turned to Dynata, another professional panel service giving access to a large range of would-be participants and, like Cint, allowing for demographic invitations (such as smokers). In this instance, participants were recruited from New Zealand as we felt we had more ability to manage the reconnect and avoid time difference communication issues with panel managers. Both panel services, Cint and Dynata, use GEOIP measures to verify that panel lists are indeed in the country they claim to be in, while CAPTCHA codes are used to avoid bot spam, ensuring only humans will be filling in the forms. Temporary cookies are also used by both panel services in the validation process of surveys. DE-DUPTING technology is also used, tagging each respondent with a unique ID that 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, and as in the case with this research, survey reconnects.

In both experiment recruitment sessions (Cint and Dynata), potential survey respondents were given the option to opt in should they fit the demographic criteria specified. All survey respondents were automatically prompted with a survey information sheet. This consisted of an official invitation to take part in the experiment. In order to ensure the respondents were comfortable and had an understanding of the subject matter

they were going to take part in, a general overview of the experiment was also communicated (McDaniel and Gates 2010).

Although Internet access has been presented as a barrier in representation of low income persons (Leeuw 2012), in recent years this has become much less of a problem, especially in affluent countries such as the United States and New Zealand, with widespread Internet availability. The systems used, through private numeric coding, also enable easy categorization and direct comparison between survey sessions. This is necessary when conducting the post-inoculation scenario testing, as comparisons must be made between the same respondents. As fear of judgement can be a factor, the insurance of privacy will maximize the subjects' comfort, leading to more truthful answers (Bryman and Bell 2001). Conducting the survey experiment online through the Cint and Dynata panel services enabled the minimization of researcher bias and eliminated the possibility of influential communication with subjects. The anonymity of participants was respected as this research did not require storing of personal identifier information. As detailed by Selm & Jankowski, (2006) computer IP addresses can be used as identifiers when needed. These do not expose participants' private information, yet still allow for avoidance of repeat survey sittings and input records.

Instead of strictly consistent scale endpoints and formats, as a mechanism to limit common method variance, all measures feature the original Likert scale anchors (Podsakoff et al. 2003; Podsakoff and Organ 1986). This practice is agreed upon by scholars as a method that results in avoidance of influencing participant responses, leading to more accurate data (Galan and Zuniga-Vincente 2007). Screening questions were used to ensure participants met the criteria required for this research, including questions related to the act of smoking and general demographic questions leading to possible testing of some of the potential moderators as discussed throughout Chapter Three. Once qualifying persons proceeded, the would-be survey respondents were first

advised of the nature of the experiment through a survey information sheet presented in the Dynata panel service. Those that chose to continue and participate were then directed to the survey information sheet where an invitation to take part in the experiment is offered. This information sheet also holds a generalized overview of the particular study and the concept of the experiment is also explained (McDaniel Jr. and Gates 2010). While the use of panel data was helpful in providing access to a demographic with a large scope of potential participants, but there were also several limitations that prevented use of this method in the remainder of the studies.

6.2.3 STUDENT SURVEYING

The longitudinal nature of the remaining experiments, with the added complexity of introducing booster messages, called for more control over the deployment of the surveys and the time frames allowed between exposures to the booster and re-testing. This is best managed by live interaction with participants rather than panel respondents. For this purpose, students from Auckland University of Technology were the participants in Experiments Four and Five.

6.3 PARTICIPANTS

A notable limitation of previous attitude inoculation research is the extensive use of students as research subjects. Compton et al., (2016) note this trend to apply to most studies found on attitude inoculation, especially concerning studies framed in a health context. While there are also certain advantages to using student participants, such as accessibility and large participant numbers, I was eager to conduct part of the research with 'real world' demographics. The decision to diversify the participant demographic was

made to null some of the critique that would come had only student participants been used. In addition, motivation for diversity of the subject groups also came from the desire to assimilate responses of what would closely resemble a real-world application of an attitude inoculation infused marketing message. The first survey experiment conducted was careful to include persons of all ages (18 and over), include diverse financial, marital and educational backgrounds and equally represent both men and women. Should subjects not be affected by a common health concern, the impact of the inoculation treatment is likely to be diluted. In all scenario settings, the intent was to focus on an issue that would be shared by all participants. For smokers, dental health. For students, dental aesthetics.

6.3.1 PARTICIPANT RECRUITMENT

As discussed, this doctoral study used two separate participant recruitment methods. Online panel recruitment, and student recruitment for booster testing. Motivated by the quantitative nature of the initial experiment, this was conducted using online surveying. Scholars maintain that when compared to offline surveying, online surveys not only offer the same level of accuracy, but can even achieve higher accuracy rates (Landoy and Repanovici 2009; Leeuw 2012; Selm and Jankowski 2006). Online surveys afford researchers more control over the process while bringing added comfort and security for participants. The use of online surveys in the case of this doctoral research facilitates finding a high number of potential participants as required by the longitudinal nature of the experiments conducted as well as allowing for demographic qualifiers to be easily administered. The online survey format adds time saving for researchers and participants alike, a reduction in cost and added ease in achieving increased security measures such as participant anonymity (Selm and Jankowski 2006).

Further discussed in 6.8, Post Hoc Identification of Meaningless Data, the online survey format allows for more in-depth monitoring throughout the survey completion process. Achieving a reduction in complexity, coupled with detailed monitoring of factors such as time spent answering, elimination of multiple and or repeat answers, and easier readability of survey data, equates to increased credibility of surveying results. A critique against online surveying is the need for equipment and internet access (Landoy and Repanovici 2009). Leeuw (2012), critiques such factors resulting in an exclusion of older and underprivileged persons. However, considering the geographic regions used in this research, such under-representation is greatly narrowed. At the writing of this thesis, PEW Research Center (2018) reports 77% of Americans owning a smartphone while 89% of American adults are internet users. At the same time, 89% of New Zealanders are also active internet users joined by 88% of Australians, while available Canadian statistics show 81% of the population as active internet users in 2016 (Statista.com 2018). To ensure the integrity of the responses, a professional online panel was used. This is further discussed in section 6.6.

While online surveying has strong advantages, there are still struggles one encounters; primarily, a high drop-out rate, especially as re-test delay times are increased. When dealing with longitudinal surveying where participants must be motivated to participate multiple times at dated settings, maintaining participant interest and motivation is difficult to do online. This process is much more reliable with a captive engaged group of participants, such as students interested in the subject matter and attending classes at regular intervals.

6.3.1 PARTICIPANT SCREENING

To present a realistic scenario that offered opportunity for topic engagement, the respondents of the first experiment were screened for a common behaviour, smoking. It

has been well documented that smokers have unique needs for specialized dental hygiene. This enabled straight forward construction of our base scenario presenting a common real-world situation that this group would likely encounter (Kim et al. 2008). In a previous study (Gadiuta 2015), I had also screened for respondents that self-identified as 'smokers'. A great shortcoming of this past research, however, was that for anyone to qualify as even a 'light smoker', they would have had to consume up to half a pack of cigarettes per day. This in actuality is quite a large quantity, and many smokers will consume far fewer cigarettes. This oversight may have caused great distortion in the overall results. Studies on smoker's behaviour found that many users will not accurately self-report their rate of use, even when reporting in private settings (Thompson et al. 2009). This was largely a result of smokers wanting to avoid social health stigmas placed on the group. In addition to stigmas there are also negative sociological disadvantages that the habit of smoking brings, such as higher health insurance premiums.

In the case of tobacco, the importance for not to be seen as 'normalizing' tobacco use, warrants consideration in the World Health Organization's recruitment policy. The WHO recruitment restriction classifies a 'smoker' as someone that consumes any amount of tobacco product, whether that be daily or occasionally (World Health Organization 2018). While social/casual smokers and heavy smokers are categorized consistently throughout the research, the distinction of a light smoker is one that has been a lot less uniform (Husten 2009). In this research 'light' smokers are identified as those that smoke 1-4 cigarettes per day. In turn, the category of 'frequent smokers' was implemented for those that smoke more than four cigarettes per day, but no more than a pack of 20.

The screening process in this research identifies smokers by first asking potential participants if they had smoked a cigarette in the last two weeks. Those that respond affirmatively to this question are then asked how they would describe their smoking frequency. This is strategically done so as to increase the likelihood of the normally under-

represented social and casual smokers participating. The respondents in this study are all self-identified smokers, consisting of the categories of casual/social smokers, smokers, frequent smokers and heavy smokers. Though all persons in these groups are undoubtedly smokers, it is important to note that casual smokers and 'phantom smokers' such as social smokers, do not always identify themselves as smokers. Having a more diverse terminology allows us to have a fair representation of lesser users (Choi et al. 2010).

Additionally, Meijer, Gebhardt, Dijkstra, Willemsen, & Van Laar (2015) have shown that users who see themselves as non-smokers have stronger intentions to quit, potentially allowing for more successful persuasion aimed at encouraging a smoke free lifestyle. My previous work on attitude inoculation (Gadiuta 2015) has shown frequency of use to be a moderator. This leads us to seek more clear differentiation between user consumption levels. There is valid critique of smoker frequency measures through cigarette consumption alone. The critique includes the inability to include monitoring of toxin consumption such as nicotine levels, changes to smoking behaviour and environmental exposure such as increased exposure to toxins through second-hand smoke in a smoker's household. Recent studies however stress that indicators of dependence are found only after a few cigarettes have been smoked (Husten 2009). Particularly, my study is not concerned with the direct health effects of consumption, but rather the response to attitude inoculation treatment of different user groups. The act of smoking, and the frequency of the behaviour is of key interest here.

Geographically, participants were limited to those residing in the United States, Canada, and New Zealand. Although attitudes in other countries have also shifted to smokers supporting anti-smoking legislation (Popovac et al. 2011), these regions are chosen due to ease of access to large quantities of potential participants, offering rich demographic, psychographic and behavioural diversity, allowing for higher potential in

moderating variables testing. In 2013, only 15% of Canadians were regular smokers (Janz 2017), while 2015 statistics from the United States Centers for Disease Control and Prevention show 15.1% of Americans to be smokers. In the 2018 New Zealand Census, the smoker population decreased to 13.2% down from 15.1% in 2013 (Stats NZ, 2019).

Tobacco smoking rates have rapidly declined in all of these countries, largely due to extensive health awareness campaigns. North America thus hosts a populace which has been long aware of the negative effects of smoking, and who also have a strong positive attitude toward maintaining good dental health. This situation is congruent to that in New Zealand. According to Oral Health and Well-Being in the United States (2017), 97% of Americans value oral health, with 82% reporting they believed good dental health would 'help them get ahead in life'. Being aware of the negative impact smoking has on dental health, smokers from these regions will have more familiarity with dental products for smokers. Because of such real-world use and familiarity of the product category, one can expect subjects were well engaged with the experiment framing (Kim et al. 2008).

6.3.2 SAMPLE SIZE

In order to obtain more accurate information, larger sample sizes are necessary. Kahneman (2011), illustrates the idea by reflecting on the example of kidney cancer cases. The counties in the United States with the lowest rates of kidney cancer are Republican, located in the Midwest, South and West, are rural and sparsely populated. The same attributes also apply to counties with the lowest rates of kidney cancer. The causality of these extremes is not attributed to political views or location, but of course to the low sample size as a result of the low populations found in these areas. For accurate information to be come from statistical analysis, the sample size must be large enough. Determination of appropriate sample size depends on the questions we ask and the

precision of the answers we seek. Previous studies on attitude inoculation have had relatively small sample sizes when considering the longitudinal properties of inoculation.

The sample size must be large enough to be considered a reliable representation of the target population (Field and Hole 2003). The sample sizes required for this research have been decided upon through reflection of prior studies with a similar subject matter and conditions, as well as consideration of likely drop-out rates due to the experiments' longitudinal properties. Though pioneers of attitude inoculation research, McGuire & Papageorgis, (1961), only used a sample group of 130 college freshman. Though the study was longitudinal and significant results were found, the focus was on determining the difference in effectiveness between attitude inoculation and supportive therapy, not specifically on the longitudinal effects of inoculation. The authors do not note any drop-out subjects, this is likely given that students were easily accessible and reliable subjects. More recently in their in-depth study focusing on the timing of counterarguments, Pfau et al., (2006) used 452 student participants, with a retention of 77.1%. This research was conducted over four phases conducted over periods of up to 20 days.

In my previous longitudinal attitude inoculation research (Gadiuta 2015), 404 respondents who had met requirements of the qualifier questions were used; however, only 136 respondents completed the entire process. Though the drop-out rate is higher than other attitude inoculation studies, the sample included a diverse array of smokers, not just students as found in most previous attitude inoculation work. The use of a more diverse demographic gave the potential for testing moderating factors such as age, however, due to the high drop-out rate resulting from the longitudinal process, significant conclusions could not be found despite suggestive trends. Due to the increase of the longitudinal attributes of the new proposed study, it seems sensible to expect an even higher drop-out rates where the subject group is not a captive audience. To decrease the impact of high drop-out rates and maintain the integrity of the results, a new set of subjects

is used for each experiment. Participant details for each of the experiments conducted for this thesis are detailed in Chapter Seven, sections 7.3 to 7.7.

6.3.3 RESET TIME

Previous studies concerned with the longitudinal properties of attitude inoculation theory call for the need in longer testing periods (Gadiuta 2015; Bobi Ivanov et al. 2009; Pfau et al. 2006). Though attitude inoculation has been found to have lesser decay in contrast to other attitude resistance techniques such as supportive therapy, most research on attitude inoculation to date have allowed relatively short re-testing times, often but days (Pfau et al. 2006). In their meta-analysis of research on inoculation theory at the time, Banas and Rains (2010) hypothesized a period of roughly two weeks (13 days), as the point where the treatment begins to decay significantly. In my Master's thesis research, I attempted to answer the call for more research on the role time plays on inoculation treatments. I addressed this by extending the re-testing period to two weeks. While the extended period of time allowed confirmation for the decay of strong attitude inoculation arguments, though not significant, the trend appeared to be opposite for a weak attitude inoculation argument, showing a potential increase over time, however the two-week period was simply not long enough. In addition, there were other limitations which may have further influenced the outcome such as the classification of a 'low frequency smoker' being someone that smokes a pack of cigarettes per day, when in fact as discussed in Chapter Three, under the relevance heading (3.3) and Chapter Four's Smokers and Tobacco heading (4.2.1), there is more complexity to smoker identity.

In the first experiment conducted in this thesis work, I decided to replicate the Master's experiment with a two week re-testing period. After conducting the more robust study with a two-week testing period, in order to observe any difference in the effectiveness of attitude inoculation as a direct consequence of time, the testing time is

then doubled in a new experiment. Furthermore, such increased time delays also allowed for a realistic inclusion of a booster message in a third experiment.

6.3.4 TREATMENT GROUPS

The studies conducted as part of this research hold the goal of assessing the differences between various inoculation treatment applications. All of the experiments conducted in this study share the commonality of requiring unique treatment groups to allow for between group comparisons. In all experiments, subjects assigned to “Group Two” are treated with a strong attitude inoculation counterargument. Again, in all experiments in this research, participants assigned to “Group One” are treated to a weak attitude inoculation counter argument. Finally, where a no inoculation argument control group is used, participants assigned to “Group Zero” serve as the control group and are not exposed to any form of attitude inoculation treatment. Though the original split between groups is of even numbers of participants amongst all the studies, the even distribution is somewhat disturbed in the second retesting of each study. This is due to natural participant dropout being a by-product of the nature of longitudinal experimentation. As the re-testing period time increases, there is also an expectation for higher participant drop-out, these rates are outlined in the previous section.

6.3.5 PARTICIPANT TABLES

The following tables show the number of participants designated to each group over the experiments conducted. Detailed participant information further shown throughout Chapter Seven, Analysis and Results.

Pre Test 1	
Group	Participant #
Weak	25
Strong	22
Stronger	22

Table 6.3.5.1

Participant distribution, Pre-Test One.

Pre Test 2	
Group	Participant #
Weak	22
Strong	25

Table 6.3.5.2

Participant distribution, Pre-Test Two.

Experiment 1	
Group	Participant #
Control	33
Weak	49
Strong	40

Table 6.3.5.3

Participant distribution, Experiment One.

Experiment 2	
Group	Participant #
Control	25
Weak	23
Strong	30

Table 6.3.5.4

Participant distribution, Experiment Two.

Experiment 3	
Group	Participant #
Control	27
Weak	24
Strong	30

Table 6.3.5.5

Participant distribution, Experiment Three.

Experiment 4	
Group	Participant #
Control	21
Weak	25
Strong	31

Table 6.3.5.5

Participant distribution, Experiment Four.

Experiment 5	
Group	Participant #
Control	12
Weak	33
Strong	22

Table 6.3.5.5

Participant distribution, Experiment Five.

6.4 PRELIMINARY TESTING

The statistical analysis results of the preliminary studies are detailed in Chapter 7.

6.4.1 PRE-TEST FOR EXPERIMENTS ONE, TWO AND THREE (SMOKERS)

As specified in section 6.3.4 Treatment Groups, the studies and experiments conducted for this research all consist of allocating subjects into three unique groups. The purpose of this split is to explore the properties of attitude inoculation depending on attitude inoculation counter-argument message strength. To establish that appropriate levels of strength were applied to the inoculation messages (weak and strong) presented in the experiment scenarios, preliminary survey question testing was conducted. Confirmation of the general strength perception for the strong and weak messages was determined through a series of survey questions and two separate instances.

The first attempt at establishing the scenarios proved to be a failure. This first testing was conducted by surveying 46 students from Auckland University of Technology in Auckland, New Zealand. The students were evenly and randomly given one of two scenarios (the weak inoculation argument version and strong inoculation argument version). The students were then given time to read the scenario and give feedback on seven questions. The questions were designed to assess the perceived strength of the proposed strong argument; these same seven questions were also to verify the perceived strength of the proposed weak argument. Upon evaluating the data, first testing reliability analysis, the weak argument showed a Chronbach's Alpha score of .856. The reliability of the strong argument group, however, was highly problematic with a Chronbach's Alpha score of -.372! The Cronbach's' Alpha testing was conducted in order to determine internal consistency reliability. At this stage, the first mistake I had made was evident. From the seven questions, only three were targeting fair assessment of the message strength, while

the other four questions in practice were far more suitable in assessing purchase intent, not the aim of this pre-test.

These findings led me to further assess the scenarios used, as well as the strength perception measure questions. I settled finally on this strong argument scenario:

'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 warns Royal only achieves quick results by use of a dangerous chemical that causes long term tooth decay, achieving only temporary cosmetic effects. Crown advises you to stick with the brand you know and trust'.

While the weak argument asked the reader to consider Crown's experience, I suspected the strong argument was perceived in a manner that had a much higher fear charged framing, pointing to supposed dangers of the competitor's product and only temporary effects. Such introduction of fear and argument of a different point between the scenarios does not provide a fair comparison and is a subject to be explored in another research. It was decided the strong argument scenario would be redesigned to have the same point as the weak argument scenario and also reduce the level of fear evoked by the stronger argument scenario. After the adjustments were made, a second testing was conducted exploring the difference between two new strong argument scenarios. This testing also included questions on fear perception with the goal of identifying the presence of any significant difference in the level of fear induced by either the strong or the weak arguments.

In this second preliminary testing, undergraduate students were again surveyed to determine the strength of the arguments used. Meaningless data resulting from

incompletion of surveys and suspicious patterns such as repetition suggesting random responses was excluded, leaving a total of 69 completed surveys. The analysis executed verify that indeed the arguments that were presented as strong or weak accurately reflected the message strength allocated. As a result of this second preliminary testing, the strong argument was updated to the following:

'As you are now considering the decision of which brand to purchase, you remember seeing advertising from Crown, your regular smoker's toothpaste. The advert states that Royal cannot compete with Crown's long experience, proven safety and the lesser abrasiveness of Crown's treatment. Crown is confident their smoker's toothpaste is still the best on the market'

6.4.1 PRE-TEST FOR EXPERIMENTS FOUR AND FIVE (WORK RECRUITMENT)

As experiments four and five consist of new scenarios, as well as new contextual framing accompanied by the introduction of imagery, a second pre-test was necessary to once again determine whether fear is a significant component determining the strength of each argument (weak vs. strong). Before conducting the experiment, it was also necessary to once again determine whether the difference between the weak argument and the strong argument was significant, and if the arguments were indeed seen as weak and strong respectively. 47 student participants completed surveys addressing these questions. A significant difference between the weak argument and the strong argument was found ($t = -8.432, p = <.001$). In this instance, fear was found to be significantly higher in the strong argument group compared to the weak argument group ($t = -2.534, p = .015$). However, the level of fear in both arguments is exceptionally low and thus it is fairly determined that fear is not compelling in either the weak argument group ($M = 1.36$) or the strong argument group ($M = 1.9$). Based on these findings (further discussed and detailed

in Chapter 7), I determined the tested scenarios to be suitable for use in testing in experiments four and five. The statistical analysis results of both preliminary studies are detailed in Chapter 7.

6.5 VARIABLE MEASUREMENT

All of the measures employed for the purpose of assessing the primary data collected in this research have been widely validated in preceding topical literature and accepted as standard means for conducting measurements in statistical research (Field 2013; Tabachnick and Fidell 2014). The measures of the questioners in this research hold the purpose of attitude determination as response to the scenarios presented and as such are presented in a marketing context. To identify subject groups, nominal measures are used. Additionally, to place subject reactions leading to measures of attitudes, multi item seven-point Likert scales are utilized. Anchoring illustrates numeric scaling where “1” equates to “Strongly Disagree” leading to “7”, which is presented as “Strongly Agree”.

6.6 TOOLS

6.6.1 SURVEY INSTRUMENT

In order to minimize researcher bias and offer a setting under which survey questions can be answered by subjects with confidence and confidentiality (Bryman and Bell 2001), the web-based survey instrument, Qualtrix was used in producing the surveys used in experiments one, two and three. The primary motive in the use of web-based surveys was the access to a diverse group of participants, representing ‘real life’ conditions. The surveys created on Qualtrix were then transferred to Cint and Dynata. Cint and Dynata are professional online panel service which offers the facilitation of online, self-completed surveys and access to a large pool of potential participants. Together, Qualtrix, Cint and Dynata are available on smartphones, desktop computers, tablets and other devices with access to an online connection and an internet browser.

The remaining experiments, Experiment Four and Five, used student participants from Auckland University of Technology in a pen and paper format. While web-based surveys have advantages, there are also certain disadvantages. The first testing for experiments one, two and three included participants who had other people answer the second sitting for them, quick responding, and latent responses. Most difficult of all, it was impossible to administer the inoculation treatment simultaneously, and measure the reconnect of all participants at the exact time. Because of this, a time delay range was used, rather than exact time delay (e.g. instead of 14 days before retesting, I had to allow 12-17 days for retesting). While the use of students alone is a limitation, the added control afforded over the timing of the experiment drove the decision to use pen and paper testing for the remaining experiments.

6.6.2 QUESTION FORMAT

Survey items were structured in Likert format, with seven-point scales for the questions. The use of Likert scales offers the advantage of giving participants a wide scope of expression in their answers. Such scaling also enables easy to follow, understandable, survey response instructions (Field and Hole 2003). Anchoring for these scales will be structured from 1 = Strongly disagree to 7 = Strongly agree. All the measurement scales are validated in previous literature (Field 2013; Tabachnick and Fidell 2014). The surveys conducted will be performed through a self-completion online questionnaire, allowing for more privacy and comfort (de Leeuw 2012). The surveys were designed on Qualtrics and administered through a web-based, panel survey service, Dynata.

Pre-test verified perceptions of the inoculation argument strengths contained in the scenarios were conducted. These were done so through surveying several groups of undergraduate students at Auckland University of Technology in written surveys. Once

argument strengths were confirmed as weak and strong with significance between the two, testing would begin using the surveys with the scenarios listed in section 6.6.3.

6.6.3 SCENARIOS

6.6.3A Smoker Toothpaste Scenarios

The scenarios presented in the survey experiments used in experiments one, two and three are as follows:

Base scenario

“As someone who smokes and is concerned for their dental hygiene, consider that for several years, you have been using a toothpaste brand especially for smokers named “Crown.” This specially formulated toothpaste aids you in countering the negative tooth discolouring effects 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 colouring 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.”

Control group version adds:

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

Weak counter-argument adds:

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 hopes you stick with the brand you know and trust

Strong counter-argument version adds:

As you are now considering the decision of which brand to purchase, you remember seeing advertising from Crown, your regular smoker's toothpaste. The advert states that Royal cannot compete with Crown's long experience and the proven safety and less abrasive effectiveness of Crown's treatment. Crown is confident their smoker's toothpaste is still the best on the market.

6.6.3B Work Placement Scenarios

The scenarios presented in the survey experiments used in Experiments Four and Five are as follows:

Base scenario

“Imagine you are nearing completing your degree, and that you will be doing so with no employment prospects. After a quick online search, you decide to sign up with the job placement company **WorkWise**.

While out in town a few days later, you notice a billboard advert from a different job placement company, **SkillScout**.

The billboard claims that **SkillScout** has a 96% graduate placement rate, a placement rate higher than any other company! **SkillScout** also claims they will find you work faster than any other recruitment company.”

SKILLSCOUT

96% GRADUATE PLACEMENT RATE!

The industry's highest graduate placement rate.

Don't waste your time with other job placement companies. When you sign up with us, you can rest easy knowing SkillScout will find you a job faster than anyone else!

Start working today.
Sign up with SkillScout now!

0800 754 5587
skillscout.co.nz

Control group version adds:

“As both job placement companies work through exclusive contracts, you must pick between the two and now decide if you will stay with WorkWise or change to using SkillScout.”

Weak counter-argument version adds:

“A little later, you notice another billboard, this time from the company you signed up with, WorkWise. WorkWise’s billboard challenges the claims of SkillScout, stating that while other placement agencies may have higher placement rates and even faster placement times, WorkWise is more reputable and the better choice in finding work relevant to your degree!



WorkWise 
workwise.co.nz ■ 0800 967 5993

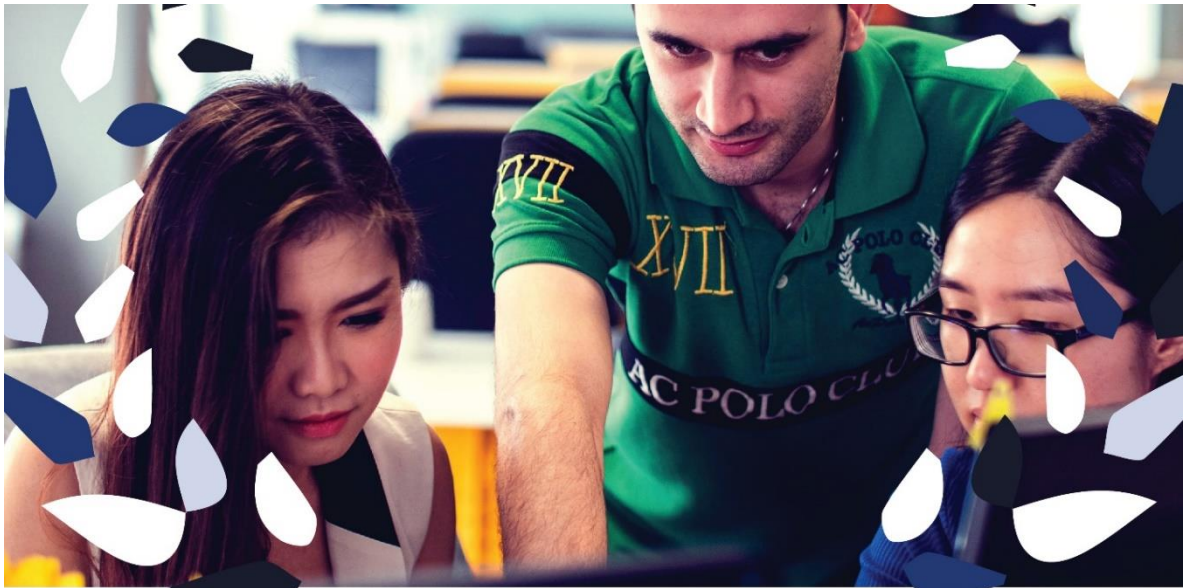
The better choice in finding relevant work.

*Other placement agencies may have higher placement rates, and even faster placement times, but **WorkWise is more reputable** and the better choice in finding work **relevant to your degree**.*

As both job placement companies work through exclusive contracts, you must pick between the two and now decide if you will stay with WorkWise or change to using SkillScout.”

Strong counter-argument version adds:

“A little later, you notice another billboard, this time from the company you signed up with, WorkWise. Workwise’s billboard challenges the claims of SkillScout, stating that while other placement agencies may have higher placement rates and even faster placement times, WorkWise is still superior. WorkWise states that most jobs their competitors place graduates into are of poor quality! They have low pay and long hours with long commuting. If you want to find a great job relevant to your degree, you should always stick with WorkWise.”



WorkWise 
 workwise.co.nz ■ 0800 967 5993

The superior choice in finding relevant work.

*Other placement agencies may have higher placement rates, and even faster placement times, but **WorkWise is still superior**. Most jobs that our competitors place graduates into are of poor quality. They have low pay and long hours with long commuting. If you want to find a great job **relevant to your degree**, you should always stick with WorkWise.*

“As both job placement companies work through exclusive contracts, you must pick between the two and now decide if you will stay with WorkWise or change to using SkillScout.”

6.6.3C Booster message

The following image was presented to participants of experiment Five at the half-way point (one week).



WORKWISE 
workwise.co.nz ■ 0800 967 5993

The better choice in tracking down work.
*Trust WorkWise to hunt for work **relevant** to your degree!*

6.6.3D Survey Questions

To measure attitude toward the original brand (to see if the inoculation has been effective or not), the participants are asked to answer a series of questions, in a mixed order. Some of the questions are designed to consider the formative power of cognitive decision processes, emotional processes and finally assessment of the likelihood of purchase. The questions are answered with a 7-point Likert scale. After the allocated time to the particular study has passed, the same respondents are asked just the base attitude questions, to see how their attitude has moderated over the time lapse. The survey questions can be found in Appendix Seven.

6.7 STUDY OVERVIEW

The following section outlines the study overview. The experiments are also further detailed in Chapter Seven, section 7.3, Experiment Designs.

6.7.1 ESTABLISHING THE BASIC RELATIONSHIP

My previous Master's study on attitude inoculation (Gadiuta 2015) has shown that strong inoculation treatments are most effective in the short-term. Despite this, these strong arguments quickly lose their impact. As more time passes, this negative decay reaches the point where such inoculation treatments are detrimental. Within a two-week testing period, the effectiveness of strong inoculation treatments had become less significant than having had no inoculation treatment at all. In contrast, weak inoculation treatment arguments were not significantly better than none in the short-term. Nevertheless, these weak treatments grew in effectiveness over the testing time period, illustrating a significant difference between the weak and strong inoculation treatments. Thus, weak attitude inoculation treatments seem more effective in the long-term.

First, I designed a large-scale experiment that was set to consider only the immediate effects of attitude inoculation, this was Experiment 1. After this, in Experiment Two, I decided to replicate my prior work to obtain test-retest validity, clarifying the longitudinal effects of strong versus weak attitude inoculation counter arguments.

DESIGN OF INOCULATION EXPERIMENT 1

Attitude measures taken after each initial exposure.

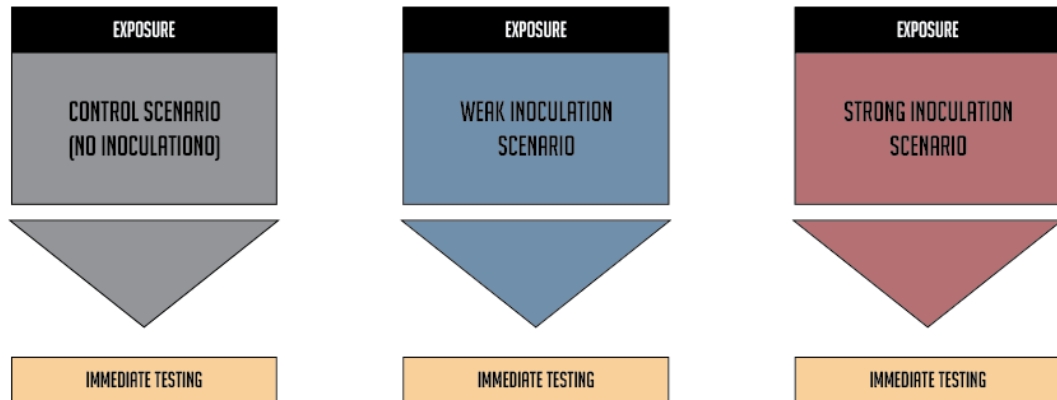


Diagram 6.7.1-1 – Experiment One

Illustration of Experiment One procedure

The context of Experiment 2 is the same as the study in my previous work (Gadiuta 2015); smokers' use of a special toothpaste to combat teeth discolouration. In these scenarios, smokers are asked to consider that they have been happily using a particular brand of toothpaste for some time and are then exposed to a competitive advertisement from a competitor. The scenarios postulate counterarguments of varied levels of strength to test the resistance they pose to the attacking message – i.e., to see how well loyalty is maintained. This is a between-group longitudinal experiment, where the first respondent group is exposed to a strong attitude inoculation argument treatment, the second group a weak attitude inoculation argument, while the third – control – group has no exposure to an inoculation treatment. Individuals in each group are later contacted to measure their attitude change.

6.7.2 THE UNDERLYING THEORETICAL MECHANISM OF COGNITION AND EMOTION

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 (Chaiken 1987; Petty and Cacioppo 1986). 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 emotional cues such as source attractiveness or expertise. 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. Given this accepted construction of attitude to cognition and emotion, it seems quite reasonable to suspect that a strong message will evoke more emotion than a weak one, but emotions fade quite quickly over time, where cognitions are more consistent as the brain often continues to process the information over time.

In the studies conducted in this thesis, questions are posed to measure the behavioral intent, cognition, and emotional responses of the respondents immediately after exposure to the counter argument and then, again, the same questions are posed after a particular time frame is allowed to elapse dependent on the goal of each experiment. So, in each group, each respondent will be asked the same set of nine questions, in a mixed order. Three of the questions are designed to measure the formative power of cognitive decision processes, three emotional processes and, finally, three items assess the likelihood of purchase. All scales are validated before being thematically combined into three primary factors: purchase intent, cognition, and emotion.

6.7.3 MODERATING BY ELAPSED TIME

The most important moderator in this research regards the impact the passage of time has on attitude inoculation. Despite my previous research having had a longer period of testing than most attitude inoculation studies, the main limitation of the research was the single period of two weeks being allowed between inoculation and attitude measurement (Gadiuta 2015). The results of this prior work showed no significant change in the efficacy of the weak message over time (a non-statistically increase) the efficacy of the strong argument fell sharply. Whether this effect continues in the same direction, or if it dissipates over a longer period (as I hypothesise it does) is the subject of this study. Based on previous attitude inoculation experiments (Godbold and Pfau 2000; Bobi Ivanov et al. 2009; Pfau et al. 2006), an elapsed period of four weeks between initial testing and re-testing seems to be appropriate. Experiments Two, Four and Five allow a two-week delay between retesting with various research goals and methods used in each experiment. Experiment Three allows between three to four weeks of time delay between the initial exposure and the reconnect. To the best of my knowledge, this would be the lengthiest duration applied to attitude inoculation testing to date.

DESIGN OF INOCULATION EXPERIMENTS 2 & 3

Attitude measures taken after each initial exposure and reconnect.

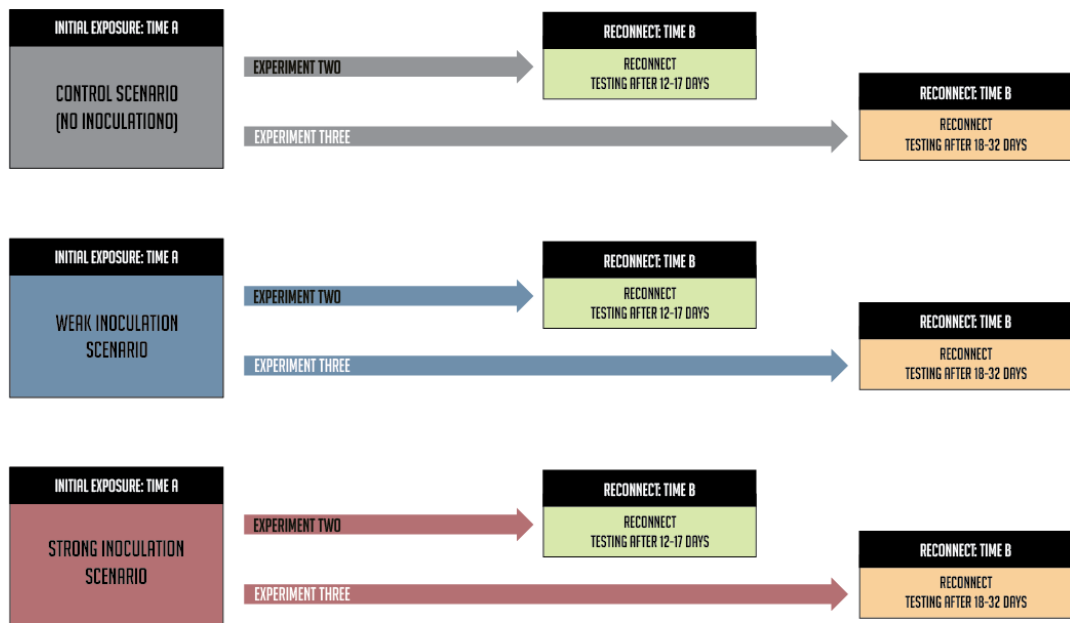


Diagram 6.7.3-1 – Experiments Two and Three

Illustration of Experiments Two and Three procedure

6.7.4 MODERATORS

Several key potential moderators of the attitude inoculation effect have been identified in Chapter Three. Although the major moderators are regarding time, there are also several other variables that will be investigated. The data produced in Study 1 is expected to yield a causal relationship between message and attitude, this relationship appears to be mediated by emotion. The design of the experiments, with two treatment groups and one control group, serve to offer as much control as possible, and the moderations proposed take care of several of the factors the literature suggests could

make a significant difference to the effect sought. The proposed moderators of both experiment one and experiment two were recorded. Experiment four and five are concerned with subject relevance, increased stimulation, and booster messages. As experiment four and five only use student participants, no further potential moderators were tested.

6.7.5 EXTENDING THE RESEARCH (RELEVANCE, GRAPHICS AND BOOSTERS)

Though a longer inoculation experiment (roughly four weeks) as in experiment three will be unprecedented, I realize it comes with a major limitation. In real-world marketing conditions, surrounded and bombarded by advertising, consumers are exposed to multiple advertisements, repetitions of these advertisements and frequent reminder cues. As previously discussed, these cues can be summed up as booster messages (Pfau et al. 2006). The fifth experiment in the proposed series will again be conducted over a duration of two weeks. Prior to execution of this experiment I will have assessed data from the previous experiments and a booster message will be placed at some point in the timeline between testing and re-testing of this final experiment (probably at the one-week mark). Though booster triggers can be very personal, experienced by individuals, for the quantitative nature of this study and as a reflection to real world advertising (Mayer and Tormala 2010; Soscia et al. 2010), the booster message will be targeted for the demographic of the exposure.

Examining the impact of a booster message may place inoculation treatment as the favourable advertising method in retaining customers and extending product life cycles (Bither et al. 1971). When attitude inoculation advertisements form the dominant attitude defence system, as suggested by Lessne and Didow Jr. (1987) and Pfau (1992), advertisers will be set to maximize their defence against comparative advertising, reduce

the likelihood of negative doppelgänger effects while also appealing to new customers. Yet another sample group is required for this experiment and, given that some participants will have to be accessed three times, the sample size needs to be large enough to afford an extensive dropout rate, or consist of a subject group that is reliably accessible multiple times, such as students. As few prior attitude inoculation studies have had this level of concern with longitudinal effects, the number of participants was adjusted after assessment of the response rate of earlier experiments in my research.

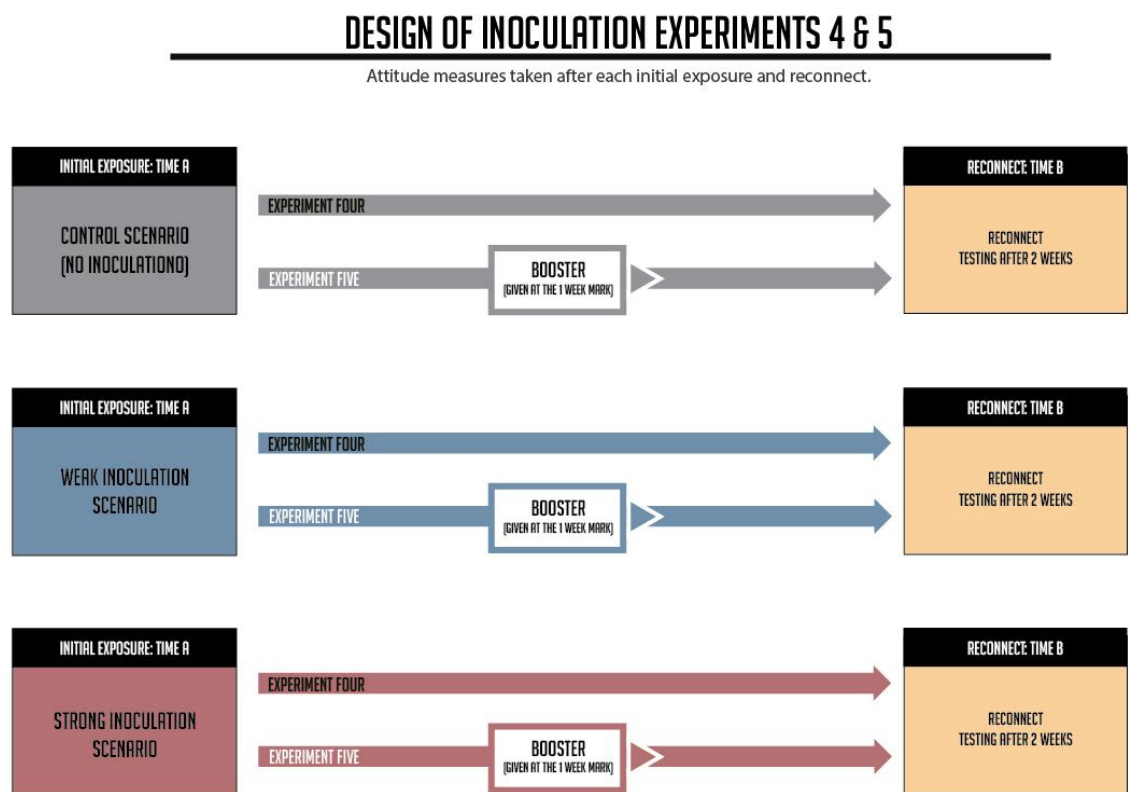


Diagram 6.7.5-1 – Experiments Four and Five

Illustration of Experiment Four and Five procedures

6.8 POST HOC IDENTIFICATION OF MEANINGLESS DATA

Data that is in its original, unfiltered state as first drawn from participant's responses is referred to as 'raw data'. Before running analysis with the data, the data should first be cleaned (Meade and Craig 2012). The purpose of cleaning the data is to produce unbiased and authentic findings, resulting in the conclusions of this research being of high integrity (Leiner 2013). In survey settings, it is not uncommon for raw data to include some number of uncompleted responses, careless responses or otherwise compromised response created by factors such as completing a survey in a time that is not reasonable to expect. In the event of a survey being completed too quickly, it is most likely the participant did simply enter random answers, while when the time duration is too long, the respondent may have sought third party information and or resources, or perhaps simply not have paid much attention to the survey. Leiner (2013) defines what is most commonly referred to 'meaningless data' as to when a participant has spent 'limited or no cognitive effort on answering a question' (p4). Meade and Craig (2012) describe meaningless data as 'data provided directly by respondents, which does not accurately reflect respondents' true levels of the constructs purportedly being measured' (p437). The post-hoc identification of meaningless data is the process under which responses identified as meaningless data are extracted and excluded from the dataset which the study is based on. This results in a clean and reliable data set that is then used for the analysis.

In this research, there are several ways in which meaningless data were identified in all of the experiments conducted. In addition, the surveys used in this study were kept short, while separate grouping and different manipulation instances were used. The length of each experiment instance was kept short as according to Meade and Craig (2012), when a survey is too long or repetitive, the likelihood of random responses is set to increase. Reasonable rational analysis quickly indicates clearly suspicious data. Such

cases were then inspected for meeting acceptable standards. One such standard, especially relevant in studies using online surveys, was the passage of time. Beach (1988) stresses the measure of time necessary as under online conditions, participants are not supervised, resulting in a higher likelihood of random responses. The usage of the Qualtrics programming included individual survey response time monitoring, resulting in easy identification of suspicious cases. As unique numbers were assigned to each test subject to afford participants anonymity in the online experiments, this numbering allowed for a cross comparison between first and second test of each study, allowing for behavioural comparison such as time spent in each instance. The student subjects that took part in the pen and paper survey were also afforded anonymity using unique codes that were only used to complete true reconnects.

7. CHAPTER SEVEN: ANALYSIS AND RESULTS

7.1 ANALYSIS PROCESS

The following diagram illustrates the analysis process, detailing the workflow stages of the preliminary testing and experiments conducted in this thesis.

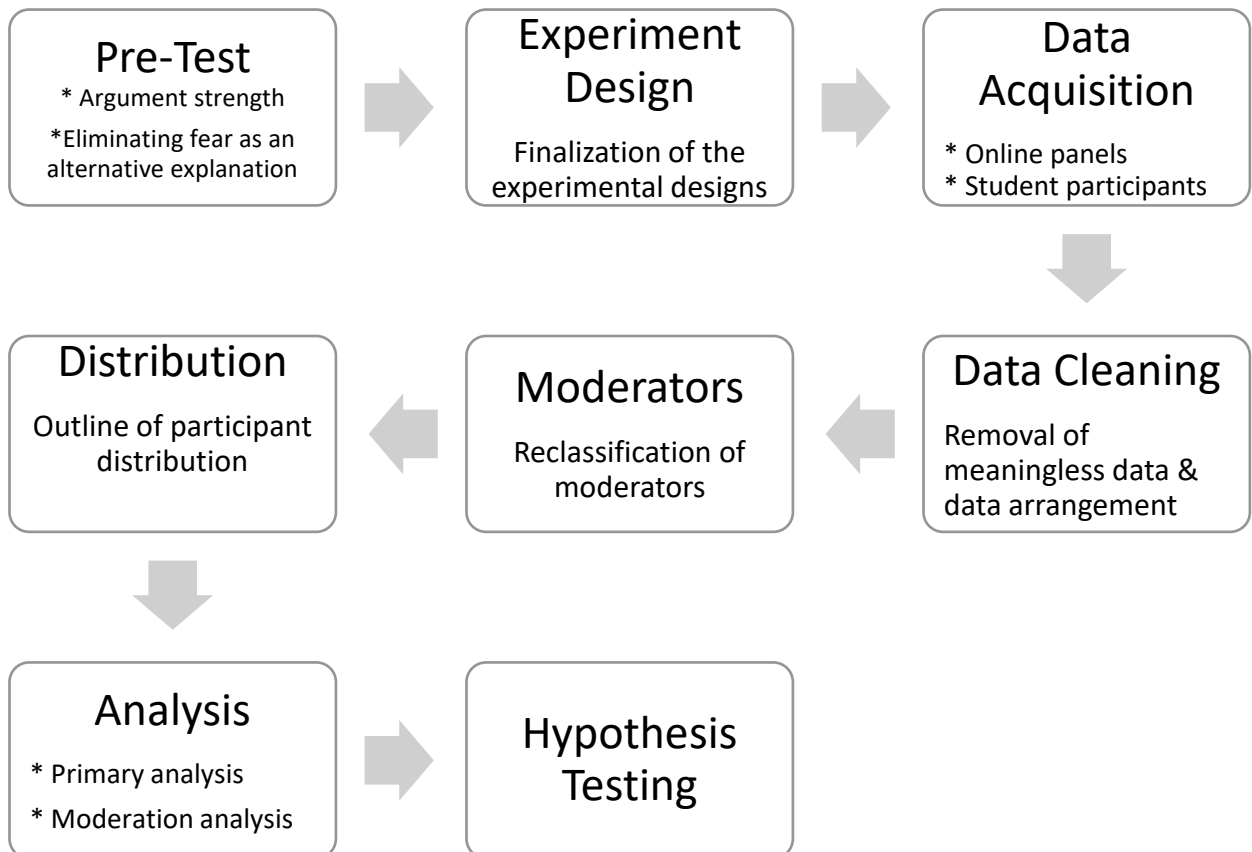


Diagram 7.1-1 – Analytical Process

Analytical process followed

7.2 PRELIMINARY TESTS

As explained in previous chapters, I consider the longitudinal effectiveness of argument strength in terms of attitude change and the cognitive and emotional subcomponents of attitude. In this thesis I argue that weak and strong inoculation arguments are likely to have different effects. With this in mind, before addressing the hypotheses, pre-tests are required to ensure that the weak and strong argument scenarios are indeed seen by participants as either strong or weak.

7.2.1-A1 PRE-TEST 1:

INOCULATION ARGUMENT STRENGTH AND FEAR (EXPERIMENTS 1,2 AND 3)

Pre-test 1 was conducted to confirm the strengths of the arguments used in experiments one, two and three, which all use the same smoker toothpaste framing and scenarios.

72 students from the Auckland University of Technology were surveyed. The students were given a weak argument and two variations of strong arguments. Three questions asked were designed to rate the perceived strength of a given scenario, while an additional three questions were given to determine the level of fear evoked by each argument. This was done to ensure that the strong inoculation messages presented were not simply just inducing a high level of fear. After removal of meaningless data (incomplete and repeat answers), the answers from 69 respondents remained.

To assess the validity of each measure contributing to the constructs of argument strength and fear, exploratory factor analysis was conducted. As the factors were determined to be unrelated to each other, an orthogonal rotation (Varimax) was used (Field, 2013). Factor loadings higher than .5 represent a positive correlation between items. This testing confirms that the two factors, message strength and fear are indeed

different. The eigenvalue of component one is 2.72, explaining 45.4% of the variance, while the eigenvalue of component two is 1.94, explaining a further 32.3% of the variation.

Item	Factor 1 <i>Strength</i>	Factor 2 <i>Fear</i>
Very powerful	.920	
Very strong	.900	
Very persuasive	.817	.203
Scary		.915
Worrying		.905
Intimidating	.327	.721

Table 7.2.1-A1 – Pre-Test 1, Factor Analysis

Factor Analysis: Rotated component matrix

To determine that each of the scales were reliable before combining them into two variables, strength and fear, a reliability analysis was conducted. Items used to determine the message strength received an alpha score of .864, while items to determine fear received an alpha score of .817. There would be no significant improvement in the Cronbach's Alpha score were any of the items were to be deleted from message strength. While removing the factor 'intimidating' from the measure of fear would improve the alpha score of fear from .817 to .866, I decided that the difference is not great enough to justify its removal.

Cronbach's Alpha	.864
Item	Alpha if deleted
Very persuasive	.865
Very powerful	.763
Very strong	.794

Table 7.2.1-A2 - Pretest 1, Reliability (Strength)

Reliability analysis: Message strength

Cronbach's Alpha	.817
Item	Alpha if deleted
Worrying	.680
Scary	.673
Intimidating	.866

Table 7.2.1-A3 - Pretest 1, Reliability (Fear)

Reliability analysis: Fear

7.2.1-A2 STATISTICAL SUPPORT FOR PRE-TEST 1.

(P1) Message Strength				
Condition	N	Mean	t-value	Sig.
Weak	25	3.88	-0.619	n/s
Strong	22	4.11		
Weak	25	3.88	-2.74	$p = .009$
Stronger	22	4.91		

(P1) Fear				
Condition	N	Mean	t-value	Sig.
Weak	25	3.49	-1.954	n/s
Strong	22	4.21		
Weak	25	3.49	-1.863	n/s
Stronger	22	4.27		

Table 7.2.1-B1 – Pretest 1, T-Tests

T-tests for message strength and fear

From the variables ‘scary’, ‘worrying’ and ‘intimidating’, a new variable representing Fear was constructed. T-tests were then conducted to compare the means of the various arguments in the survey. No significant differences in were found between any of the groups (control, weak and strong) when testing for the effect of fear.

When it came to message strength, a new variable named “argument strength” was constructed from the factors of ‘very powerful’ ‘very strong’ and ‘very persuasive’. This was then used to judge the difference in level between the three scenarios, weak, stronger, and very strong. The weak argument strength was not significantly different to the stronger, mid-level argument strength. However, the strongest argument strength tested was indeed perceived as being significantly stronger than the weak argument ($t = 2.74$, $p = .009$). Based on these results, the mid-level argument-strength scenario was

excluded from further work, while the 'stronger' scenario was used as the strong scenario in experiments one, two and three. The statistical results are presented in Table 7.2.1-B1. The scenarios mentioned may be found in Chapter 6, (6.6.3).

7.2.2-B1 PRE-TEST 2: INOCULATION ARGUMENT STRENGTH (EXPERIMENT 4&5)

Pre-test 2 was conducted to confirm the strengths of the arguments used in experiments four and five, which all use the same framing and scenarios of job recruitment company advertisements. 50 students from Auckland University of Technology participated in this preliminary testing. Two of the students did not complete the survey in its entirety and were thus excluded, while another student had dubious response with duplicate answering. The answers from the remaining 47 students were used to determine whether there was indeed a statistical difference between the weak argument and the strong argument presented in the work recruitment scenario.

As with the pre-test of experiments one, two and three, fear was again measured to determine whether it would be an underlying force causing differentiation between the two arguments. To assess the validity of each measure contributing to the constructs of argument strength and fear, exploratory factor analysis was conducted. As the factors were determined to be unrelated to each other, an orthogonal rotation (Varimax) was used (Field, 2013). Factor loadings higher than .5 represent a positive correlation between items. This testing confirms that the two factors, message strength and fear are indeed different. The first component was found to have an eigenvalue of 3.41, explaining 56.8% of the variance, while the second component produced an eigenvalue of 1.52, accountable for a further 25.2% of variance. The factor analysis results are shown in the table below (7.2.2-A1).

Item	Factor 1 <i>Strength</i>	Factor 2 <i>Fear</i>
Strength 1	.976	
Strength 2	.961	
Strength 3	.945	
Fear 2		.869
Fear 1		.849
Fear 3		.706

Table 7.2.2-A1 – Pretest 2 – Factor Analysis

Factor Analysis: Rotated Component Matrix

Before moving onto combining the scales into just two variables, strength and fear, a reliability analysis was conducted. The items used to determine the message strength received an alpha score of .976, while items to determine fear received an alpha score of .741. There would be no significant improvement in the Cronbach's Alpha score were any of the items to be deleted from message strength. While removing the factor 'Fear 3' (worrying), from the measure of fear would improve the alpha score of fear from .741 to .794. Testing was conducted with maintaining this factor as well as the removal of the factor. The used data output is illustrated in the following section, 'Statistical Support For Pre-Test 2' (7.2.2-B1 & B2).

Cronbach's Alpha	.976
Item	Alpha if deleted
Strength 1	.967
Strength 2	.961
Strength 3	.966

Table 7.2.2-A2 – Pretest 2, Reliability (Strength)

Reliability analysis: Message Strength

Cronbach's Alpha	.741
Item	Alpha if deleted
Fear 1	.613
Fear 2	.572
Fear 3	.794

Table 7.2.2-A3 – Pretest 2, Reliability (Fear)

Reliability analysis: Fear

7.2.2-B2 STATISTICAL SUPPORT FOR PRE-TEST 2.

(P2) Message Strength				
Condition	N	Mean	t-value	Sig.
Weak	22	3.48	-8.432	$p = <.001$
Strong	25	5.79		

(P2) Fear				
Condition	N	Mean	t-value	Sig.
Weak	22	1.36	-2.534	$p = .015$
Strong	25	1.9		

Table 7.2.2-B1 – Pretest 2, T-Tests

T-tests for Strength & Fear

As shown in Table 7.2.2-B1 the difference between the weak argument scenario and the strong argument scenario were indeed found to be highly significant ($t = -8.432$, $p = <.001$). While a significant difference in fear was found between the two conditions, ($t = -2.534$, $p = .015$), the actual level of fear was exceptionally low ($M_{\text{weak}} = 1.36$; $M_{\text{strong}} = 1.9$). Keeping the factor 'worrying' (Fear 3) also produces a significant result ($t = -2.795$, $p =$

.008), though, as with the removal of this factor, the mean scores for both the weak argument ($M = 1.53$) and the strong argument ($M = 2.09$) are very low, maintaining the idea that the level of fear experienced by either group is negligible. As with Pre-Test 1, fear can be ruled out as an alternative argument for argument strength.

7.3 EXPERIMENT DESIGNS

To remind the reader, the diagrams below again show the final experiment designs. Additional details of the studies can be found in Chapter Six (6.7) under the heading Study Overview.

7.3.1 EXPERIMENT ONE

The first experiment is conducted in order to test the ‘common sense’ idea that immediately after an inoculation treatment, a strong argument inoculation is more effective than a weak argument inoculation.

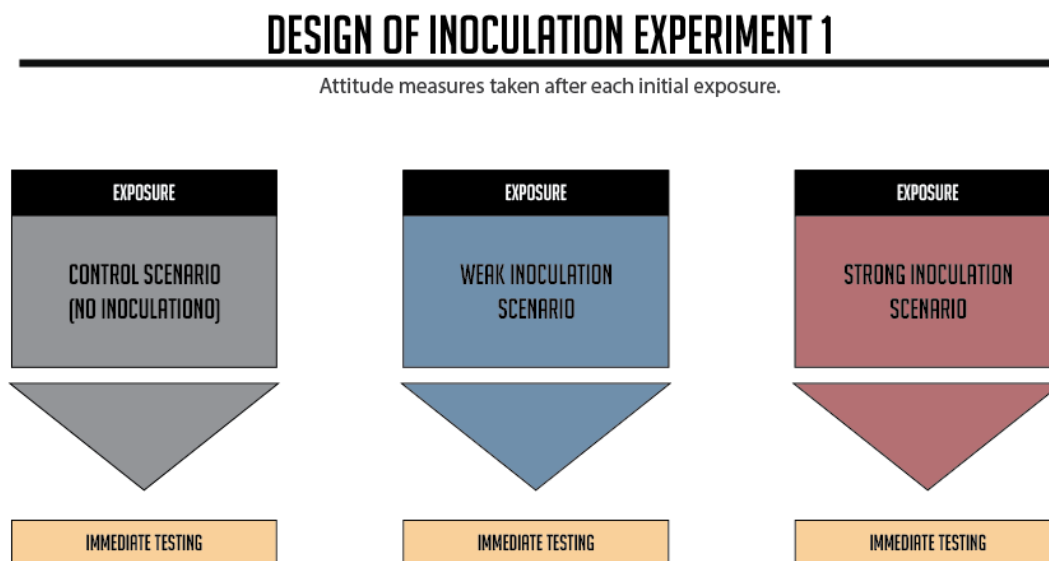


Diagram 7.3.1-1 – Experiment One

Design of Experiment One

7.3.2 EXPERIMENTS TWO AND THREE

Experiment two, the short-term inoculation test (12-17 days) and experiment three, the long-term inoculation test (28-32 days). Are predominantly designed to explore the long-term effects of each inoculation treatment type (weak and strong) over a shorter time (12-17 days) and a longer period (28-32 days). For both experiments, attitudes of each group (control, weak inoculation, and strong inoculation) were measured immediately after the initial exposure. Attitudes were then once again measured for all groups immediately after the reconnect.

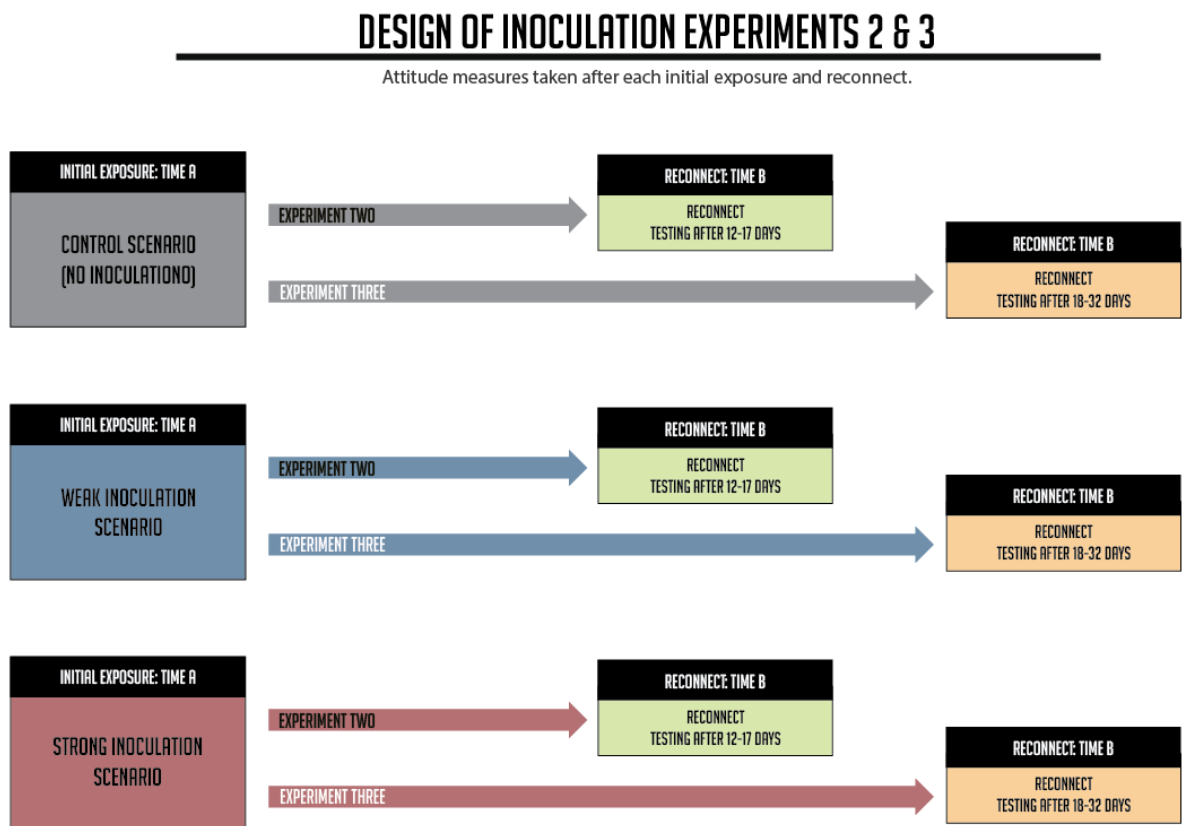


Diagram 7.3.2-1 – Experiments Two & Three

Design of Experiment Two and Three

7.3.3 EXPERIMENT FOUR AND FIVE

Like experiments two and three, experiment four presents participants with a scenario varying in inoculation type. Participants are split into three groups, one group receiving a no inoculation control, another group receiving a weak attitude inoculation treatment and a final group which is exposed to a strong inoculation treatment. With new scenarios presented, the subject matter is changed from dental health to employment prospects. This was done as to ensure a higher relevance for the student participants and also to explore whether variation in topic framing produces substantially different patterns in the effects of the various inoculation treatments. Visual stimulus is also introduced as part of the scenarios in the form of still graphic advertisements. This was done to increase engagement. Experiment four and five also introduce a stricter control over the testing period, with final retesting taking place for all participants simultaneously at the two-week mark. Experiment five differs to experiment four only in that a reminder 'booster' message is introduced to participants at the midpoint (one week) mark. The booster message is introduced in the form of an advert from the defending brand. This advert is presented to all participants at the same time at the week two mark.

DESIGN OF INOCULATION EXPERIMENTS 4 & 5

Attitude measures taken after each initial exposure and reconnect.

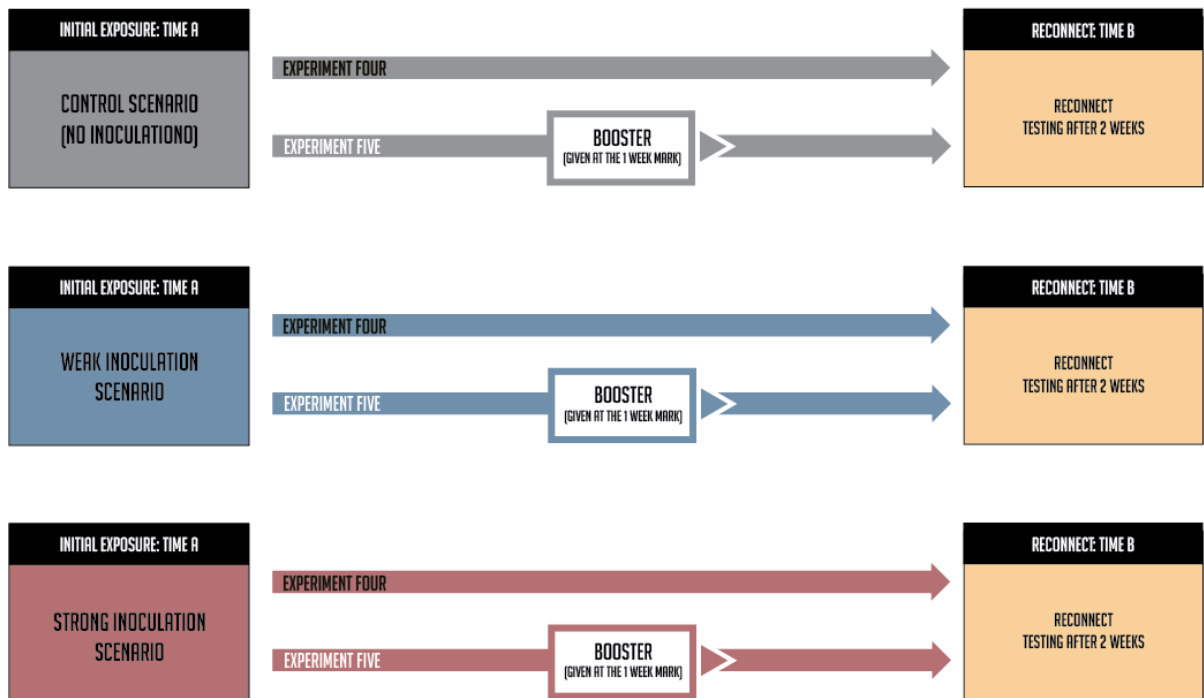


Diagram 7.3.3-1 – Experiments Four & Five

Design of Experiment Four and Five

7.4 DATA ACQUISITION

A detailed description of data acquisition is outlined in Chapter 6. To recap, the data used in the experiments conducted in this thesis comes from several sources. Two different professional online panel services, Cint and Dynata, were used. Each provides access to a database of unique respondents and were used for deploying and managing the timing of the surveys and survey reconnects used in both Experiment One, Experiment Two and Experiment Three. For experiments Four and Five, due to the need for increased experimental control and an attempted reduction in drop-out rates, undergraduate student participants from Auckland University of Technology were used.

7.5 DATA CLEANING

In all experiments, participants who took less than 60 seconds and longer than 15 minutes to complete either the initial exposure or the reconnect were removed. These times were calculated from a combination of subjective judgement and a consideration of the mean time taken by all respondents.

7.6 MODERATOR REDISTRIBUTION (EXPERIMENT TWO & THREE)

Due to uneven distribution of potential moderating factors as factored into experiments two and three, age, income, relationship, education, and smoker frequency, some redistributing of within grouping was necessary. Age originally was set in three groups: 18-39 (group 1), 40-59 (group 2), 60+ (group 3). By combining group two and group 3, this was changed to two groups, younger (18-39) and older (40+). The original distribution of relationship status was split into three groups. Group one consisted of single/never married participants. Participants in group two were all married, living with a partner or widowed. Participants in the third group were all divorced or separated. Group one and three were combined, forming the new group 'single'. The second group was renamed to 'partnered'. The income distribution originally consisted of three groups. Group one, those earning a household income less than \$59,999, group two, those who's household income was \$60,000-\$99,999 and group three, those with a household income higher than \$100,000. Group one was left unaltered and renamed 'lower income' while groups two and three were merged to form a new group labeled 'higher income'. The education category was also in need of participant redistribution with the formation of new groups. Originally the four groups were: Group one, no formal education. Group two, high school / GED. Group three, diploma/apprenticeship, and group four college degree or higher. Groups one and two were merged to form a new group labeled 'lower educued',

while those in groups three and four were joined to form second new group labeled 'higher educated'.

The original dataset consisted of four smoker groups associated with subject relevance based on smoking frequency. In group 1 were those that identified as social / occasional smokers. Group 2 consisted of participants that smoked 1-4 cigarettes per day. Group 3 was formed by participants who smoked several cigarettes per day, but no more than a pack and finally group 4 consisted of participants that smoke more than a pack of cigarettes per day. These groups were reformed into two groups. By combining groups one and two, the group 'low frequency smokers' was formed and through combination of groups 3 and 4, the second new group was formed, labeled 'high frequency smokers'.

7.7 VARIABLE CONSTRUCTION

All the experiments conducted in this thesis are designed with dual-purpose. First, I seek to identify what the effect of inoculation is under different conditions. Second, I attempted to provide evidence to reveal an underlying mechanism of inoculation, based on cognition and emotion. That is to ask, how and when do different inoculation treatments work and when a treatment does indeed work, does the treatment evoke thought or emotion? How do thoughts and feelings hold or change under the different conditions? In attempt to answer these questions, multiple target variables were created. These variables are Intention, Cognition and Emotion.

These categories were chosen in part in attempt to help uncover the inner working mechanism(s) of attitude inoculation, as well as to identify potential optimal applications of inoculation treatment based on desired outcome. In some instances, perhaps such as the case with a flash sale, the primary goal may be to influence purchase intent. In other applications, such as bolstering support for a sports team, increasing emotion may be the more desired outcome, while in other cases, perhaps drug education, cognitive reaction

may be the most valuable marker. To assess the validity of each measure, that is, confirming its contribution to the relevant construct (Intent, Cognition or Emotion), exploratory factor analysis was conducted. Using IBM's SPSS (version 26), factor analysis was conducted for each of the primary themes, Intent, Emotion and Cognition.

Based on inoculation time delay, the data was split into two unique data sets. The first group, Shorter Inoculation, consists of participants that completed the reconnect survey between 12-17 days. The second group, Longer Inoculation, is comprised of participants that completed the reconnect survey between 18-32 days. 279 total participants were used, 112 in the shorter inoculation reconnect and 167 participants in the longer inoculation reconnect.

As previously mentioned, experiment four introduced higher subject relevance and increased stimulation in the form of photographic advertisements accompanying written scenarios. The participants of these experiments were students of Auckland University of Technology. Experiment Four had 77 participants, while Experiment Five had 67 participants. Incomplete surveys and reconnects were excluded from the study. While the treatment groups of experiments Four and Five are not evenly spread, statistical findings were still achieved (As shown throughout Chapter Seven). The limitations of these experiments including the effects of COVID19 are discussed in Chapter Eight (8.5).

7.8 ADDRESSING THE PRIMARY HYPOTHESES

Primary Hypothesis 1: Immediately after an inoculation treatment, a stronger inoculation argument generates more purchase intent than a weak inoculation argument.

Primary Hypothesis 2: After a short time (14 days) the weak argument will become more effective than a strong argument in terms of purchase intentions.

Primary Hypothesis 3: After a shorter time (12-17 days) emotions generated by the arguments will fade more swiftly than cognitions.

Primary Hypothesis 4: Any initial purchase intentions will have disappeared after a longer time frame (21+ days).

Primary Hypothesis 5: In the long term, both weak and strong inoculation treatments will be less effective than no inoculation in terms of maintaining cognition or emotion.

What this means is that I seek a pattern, where I believe a strong counterargument is more effective but only in the short term, and that it is the relatively swift fading of emotions that lies behind the pattern. To conduct this investigation, I proceeded with the following steps:

1. Chart the differences in Purchase intentions for the three argument conditions between Time A and Time B by application of an interactive ANOVA technique.
2. Provide statistical support for the chart (significance of observed differences between elements at each time, and differences in level of each element over the two times)
3. Chart the differences in cognitions and emotions for the three argument conditions between Time A and Time B.
4. Provide statistical support for these two charts in the same manner
5. Repeat steps 1-4 for the longer time-period of 21 days
6. Address the possible moderating factors identified as to answering the remaining Primary Hypotheses as well as the Subsidiary Hypotheses.

Primary Hypotheses Summary

- | | |
|------|--|
| PH1 | Immediately after an inoculation treatment, a stronger inoculation argument generates more purchase intent than a weak inoculation argument. |
| PH2 | After a short time (12-17 days), the weak argument will become more effective than the strong argument in terms of maintaining purchase intentions. |
| PH3 | After a shorter time (12-17 days), emotions generated by inoculation arguments will fade more swiftly than cognitions. |
| PH4 | Any initial purchase intentions will have disappeared after a longer time frame (21+days) |
| PH5 | In the long term (21+ days), both weak and strong inoculation treatments will be less effective than no inoculation in terms of maintaining cognition or emotion. |
| PH6 | Higher subject relevance will amplify the effects of inoculation on purchase intent over time, making a weak inoculation the most effective long-term treatment. |
| PH7 | Higher subject relevance will amplify the effects of inoculation maintaining emotions and cognition |
| PH8 | Increasing subject relevance and enhancing the delivery medium will improve the effectiveness of both weak and strong inoculation arguments in terms of purchase intent. |
| PH9 | Higher subject relevance, presented through enhanced delivery, will stimulate maintenance of more favorable cognition and emotion in response to inoculation treatments. |
| PH10 | A booster message will improve the effectiveness of inoculation treatments on purchase intent. |
| PH11 | A booster message will stimulate more favorable cognition and emotion in response to inoculation treatments. |

7.8.1 EXPERIMENT ONE

7.8.1-A1 PH1: Immediately after an inoculation treatment, a stronger inoculation argument generates more purchase intent than a weak inoculation argument. (Experiment 1)

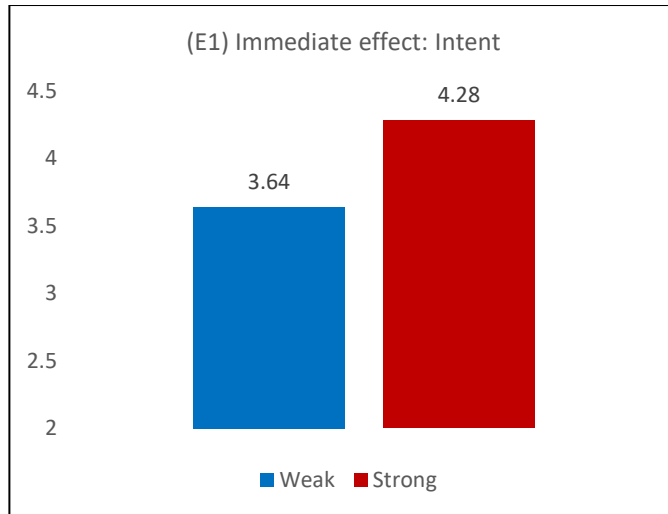


Figure 7.8.1-A1 (PH1)

Significant difference of intent between weak and strong inoculation, measured immediately after treatment.

7.8.1-A2 PH1: Statistical evidence (Experiment 1)

Analysis of the data from experiment one provides supportive evidence for Primary Hypothesis 1 (PH1) '*Immediately after an inoculation treatment, a stronger inoculation argument generates more purchase intent than a weak inoculation argument*'. To uncover any significant differences between the various inoculation conditions (control/no argument, weak argument, and strong argument), a series of t-tests were conducted. As shown in Table 7.8.1-A1, while no significant difference was found between the control and the weak argument, or the control and the strong argument, the strong argument was indeed significantly more effective in generating purchase intent when compared to the weak argument ($t = -2.12, p = .037$). This effect is visualized in Figure 7.8.1-A1. In terms of mean response score, the strong argument group also generated the most favourable response ($M = 4.28$).

(E1) Intent				
Condition	N	Mean	t-value	sig.
Control	33	3.73	0.272	n/s
Weak	49	3.64		
Control	33	3.73	-1.551	n/s
Strong	40	4.28		
Weak	49	3.64	-2.12	p= .037
Strong	40	4.28		

Table 7.8.1-A1 (PH1)

Immediate effects of purchase intent after inoculation. (Experiment One)

7.8.2 EXPERIMENT TWO

7.8.2-A1 PH2: After a short time (14-17 days), a weak argument will become more effective than a strong argument in terms of purchase intentions.

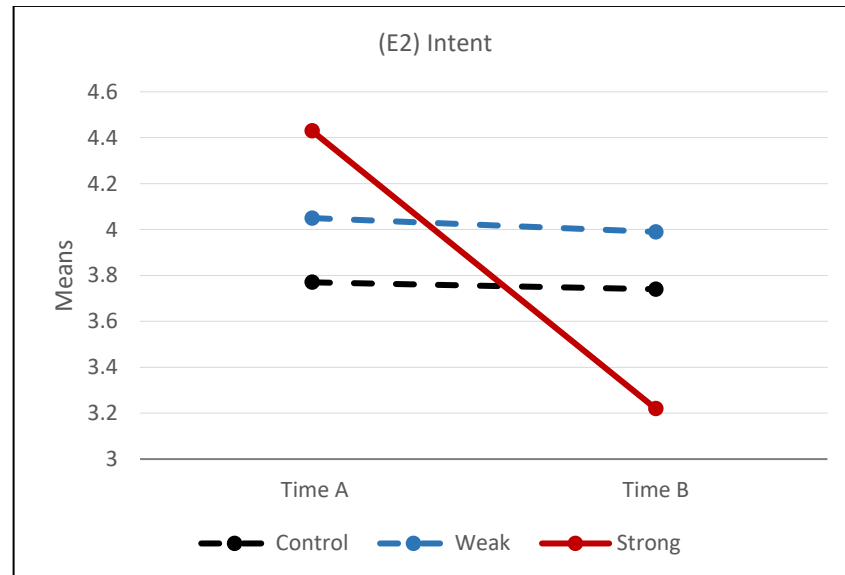


Figure 7.8.2-A1 (PH2)

Pattern of effectiveness in retention of Purchase Intention for three treatments over 13-17 days. (Experiment Two)

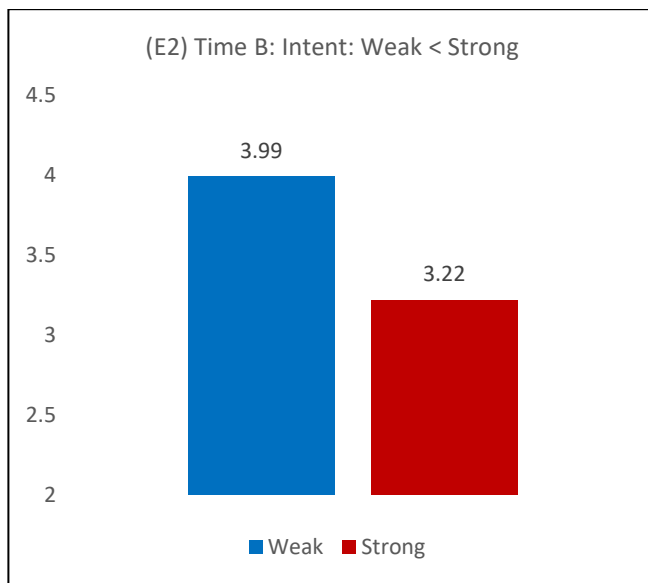


Figure 7.8.2-A2 (PH2)

Significant difference between weak argument group and strong argument group at Time B. (Experiment Two)

7.8.2-A2 PH2: Statistical evidence (Experiment 2)

The pattern found and illustrated in Figure 7.8.2-A1 shows support for the Primary Hypothesis 2 (PH2) ‘After a short time (12-17 days), the weak argument will become more effective than the strong argument in terms of maintaining purchase intentions’ with interactions identified for both Time as well as Condition*Time (Condition $F = .54$, $p = .58$; Time $F = 4.51$, $p = .035$; Condition*Time $F = 3.83$, $p = .024$). Despite not being significantly different to the control or the weak argument, at Time A, the strong argument generated the most favorable response ($M = 4.43$). Again as shown in Figure 7.8.2-A1, and detailed in Table 7.8.2-A2 however, the strong argument significantly loses its effectiveness over time ($t = 4.3$, $p = <.001$), while the control (no argument) and the weak argument do not show any significant change between Time A and Time B. Due to this combined effect, at Time B, the weak argument was found to have become significantly more effective in generating higher purchase intent compared to the strong argument ($t = 2.8$ $p = .007$).

(E2) Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	25	3.77	-.692	n/s
Weak	23	4.06		
Control	25	3.77	-1.71	$p = .094$
Strong	30	4.43		
Weak	23	4.06	-1.08	n/s
Strong	30	4.43		

(E2) Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	25	3.75	-.613	n/s
Weak	23	3.99		
Control	25	3.75	1.63	n/s
Strong	30	3.22		
Weak	23	3.99	2.82	$p = .007$
Strong	30	3.22		

Table 7.8.2-A1 (PH2)

Significance of observable differences for purchase intent between Time A and Time B (Experiment Two).

(E2) Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.77	3.74	.061	n/s
Weak	4.05	3.99	.207	n/s
Strong	4.43	3.22	4.34	$p = < .001$

Table 7.8.2-A2 (PH2)

Significance of observable differences in purchase intentions between Time A and Time B (Experiment Two)

7.8.2-B1 PH3: After a shorter time (12-17 days), emotions generated by inoculation arguments will fade more swiftly than cognitions.

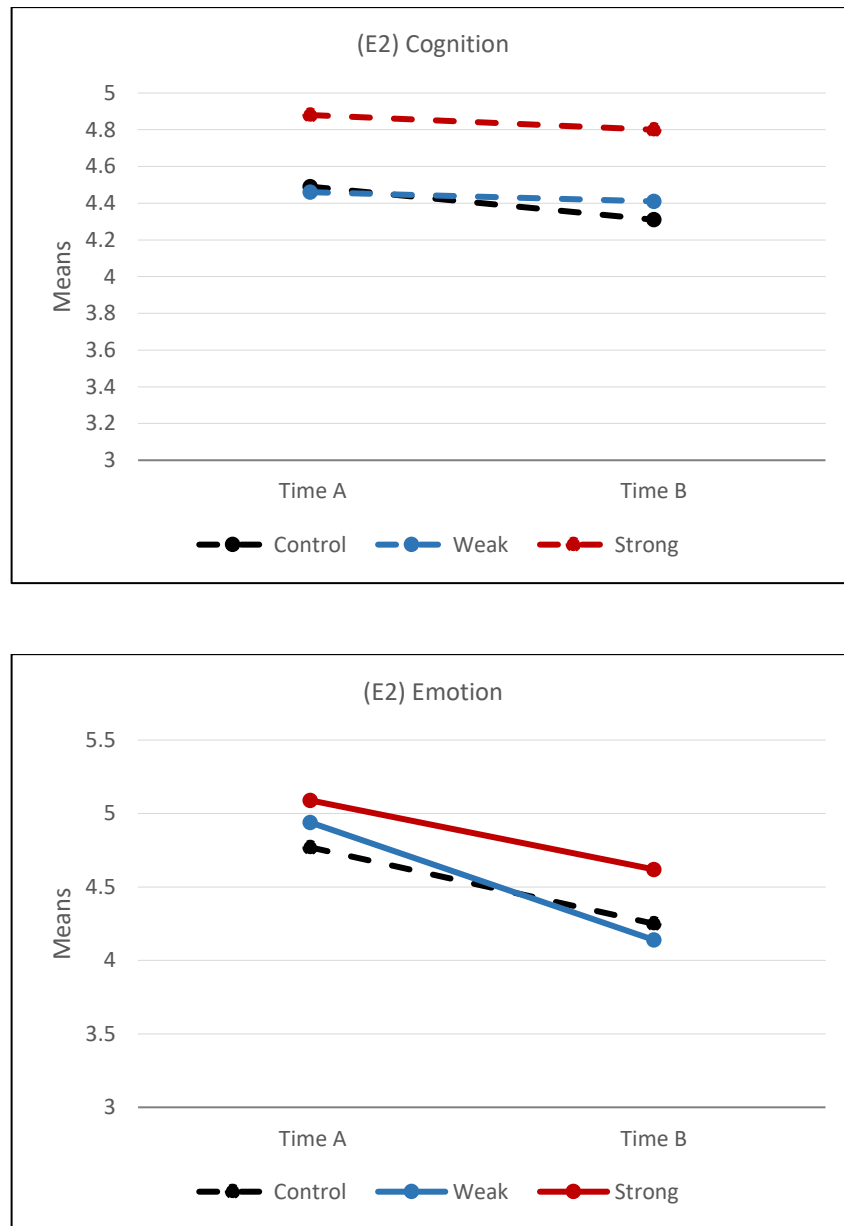


Figure 7.8.2-B1 (PH3)

Means for emotions for three treatment conditions (13-17 days)

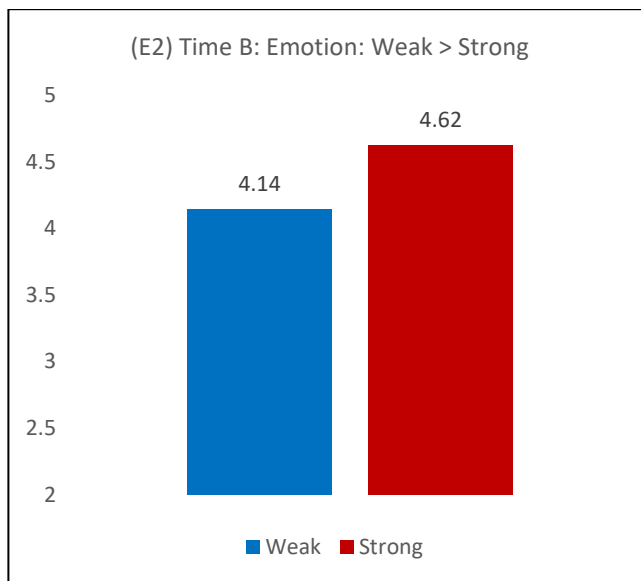


Figure 7.8.2-B2 (PH3)

Significant difference found in emotion between the weak and strong argument groups at Time B'.

7.8.2-B2 PH3: Statistical evidence

The same ANOVA with interaction calculations that were made for purchase intentions are repeated for the measure of cognition (Condition $F = 2.01$, $p = 0.1$; Time $F = 0.2$, $p = 0.6$; Condition*Time $F = .036$, $p = .96$) and emotion (Condition $F = 2.40$, $p = .09$; Time $F = 16.41$, $p = <.001$; Condition*Time $F = .47$, $p = .62$). No significant statistical differences were found between groups or within groups when measuring cognition. Emotion however, as pictured in Figure 7.8.2-B1 and specified in Table 7.8.2-B2 drops significantly between time A and Time B for both the weak argument group ($t = 2.90$, $p = .006$) and the strong argument group ($t = 2.38$, $p = .02$). This effect is supporting evidence for Primary Hypothesis 3, *'After a shorter time (12-17 days), emotions generated by inoculation will fade more swiftly than cognitions'* indicating that, indeed, emotions generated by the arguments fade more swiftly than cognitions. In addition, presented in Figure 7.8.2-B1, interestingly, the level of emotion expressed by persons in the strong argument group at Time B is significantly higher than that expressed by those in the weak argument group ($t = -2.22$, $p = .03$).

(E2) Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	25	4.49	.073	n/s
Weak	23	4.46		
Control	25	4.49	-1.059	n/s
Strong	30	4.88		
Weak	23	4.46	-1.164	n/s
Strong	30	4.88		

(E2) Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	25	4.31	-.613	n/s
Weak	23	4.41		
Control	25	4.31	-1.413	n/s
Strong	30	4.8		
Weak	23	4.41	-1.260	n/s
Strong	30	4.8		

(E2) Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	25	4.77	-.567	n/s
Weak	23	4.94		
Control	25	4.77	-.1264	n/s
Strong	30	5.09		
Weak	23	4.94	-.594	n/s
Strong	30	5.09		

(E2) Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	25	4.25	.390	n/s
Weak	23	4.14		
Control	25	4.25	-1.542	n/s
Strong	30	4.62		
Weak	23	4.14	-2.216	$p = .031$
Strong	30	4.62		

Table 7.8.2-B1 (PH3)

Significance of observable differences for cognition and emotion at Time A and Time B.

(E2) Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.49	4.31	.464	n/s
Weak	4.46	4.41	.165	n/s
Strong	4.88	4.8	.247	n/s

(E2) Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.77	4.25	1.748	.087
Weak	4.94	4.14	2.905	.006
Strong	5.09	4.62	2.387	.020

Table 7.8.2-B2 (PH3)

Significance of observable differences in cognition and emotions between Time A and Time B

7.8.3 EXPERIMENT THREE

7.8.3-A1 PH4: Initial purchase intentions will have disappeared after a longer time frame
(21+ days)

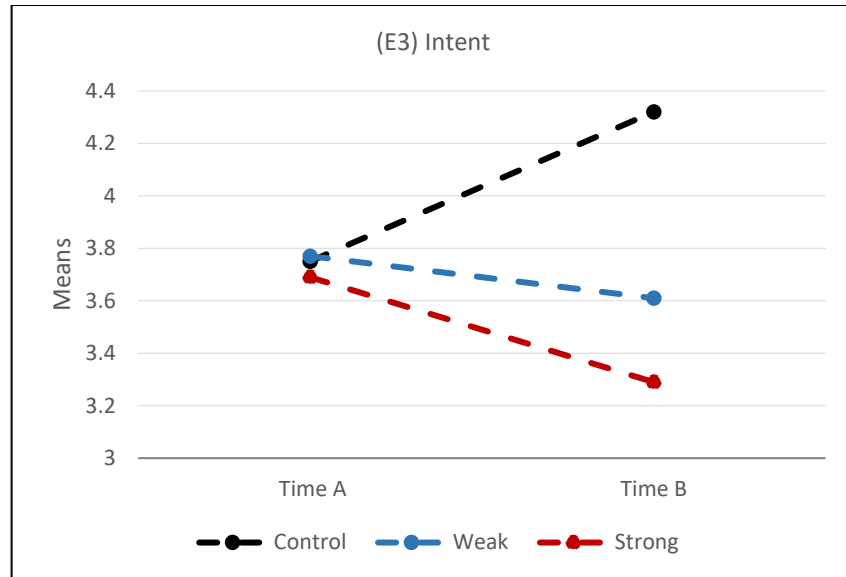


Figure 7.8.3-A1 (PH4)

Pattern of effectives for the three treatment groups (control, weak and strong arguments), under the longer inoculation treatment (18-32 days)

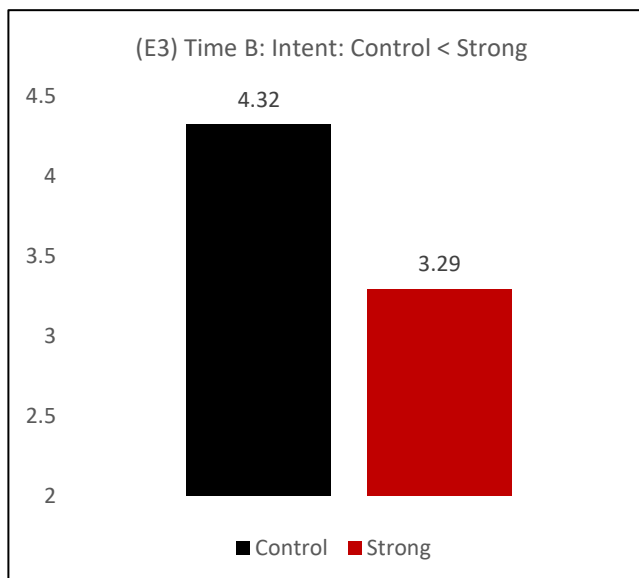


Figure 7.8.3-A2 (PH4)

Significant difference identified between the control and strong argument group at Time B (13-17 days)

7.8.3-A2 PH4: Statistical evidence

Once again, ANOVA with interaction calculations are used to the measure significances of purchase intent, this time, applied to the dataset of the long inoculation time-period (18-32 days). The results are as follows: (Condition $F = 2.61$, $p = .07$; Time $F = .00$, $p = 0.99$; Condition*Time $F = 2.14$, $p = .12$). No significant differences were found between groups at Time A, nor were any significant differences identified within groups between Time A and Time B. These findings (as presented in Tables 7.8.3-A1 and 7.8.3-A2) do not provide support for Primary Hypothesis 4, '*Any initial purchase intentions will have disappeared after a longer time frame (21+ days)*'.

Though neither the effect of the weak nor strong inoculation treatment changed significantly over the long time period (18-32 days) between Time A and Time B, the control, which contains no argument, (as portrayed in Figure 7.8.3-A2 and Table 7.8.3-A1) was actually found to be more significant than the strong argument at Time B ($t = 3.14$, $p = .003$). This is an indication that while no within-group change was significant, the increase in the mean score of the control group from Time A ($M = 3.75$) to Time B ($M = 4.32$) in effect with the decrease of the mean score of the strong argument group from Time A ($M = 3.69$) to Time B ($M = 3.29$) renders a strong argument inoculation treatment less effective in the long term than administering no inoculation treatment at all. While the decline of the weak and strong arguments and the improvement of the control were not significant over time, the overall effects did create differences thus it cannot be said that initial purchase intentions have disappeared. This would only have been the case if the control group also had a downward trend.

(E3) Time A: Intent					(E3) Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	27	3.75	-.067	n/s	Control	27	4.32	1.791	$p = .079$
Weak	24	3.77			Weak	24	3.61		
Control	27	3.75	.173	n/s	Control	27	4.32	3.148	$p = .003$
Strong	30	3.69			Strong	30	3.29		
Weak	24	3.77	.267	n/s	Weak	24	3.61	1.055	n/s
Strong	30	3.69			Strong	30	3.29		

Table 7.8.3-A1 (PH4)

Significance of observable differences in purchase intent, for long-term inoculation.

(E3) Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.75	4.32	-1.397	n/s
Weak	3.77	3.61	.482	n/s
Strong	3.69	3.29	1.36	n/s

Table 7.8.3-A2 (PH4)

Significance of observable differences within groups for purchase intent between Time A and Time B under a longer inoculation.

7.8.3-B1 PH5: In the long term (21+ days), inoculation, both weak or strong, will be less effective in generating cognition and emotion, compared to no inoculation treatment.

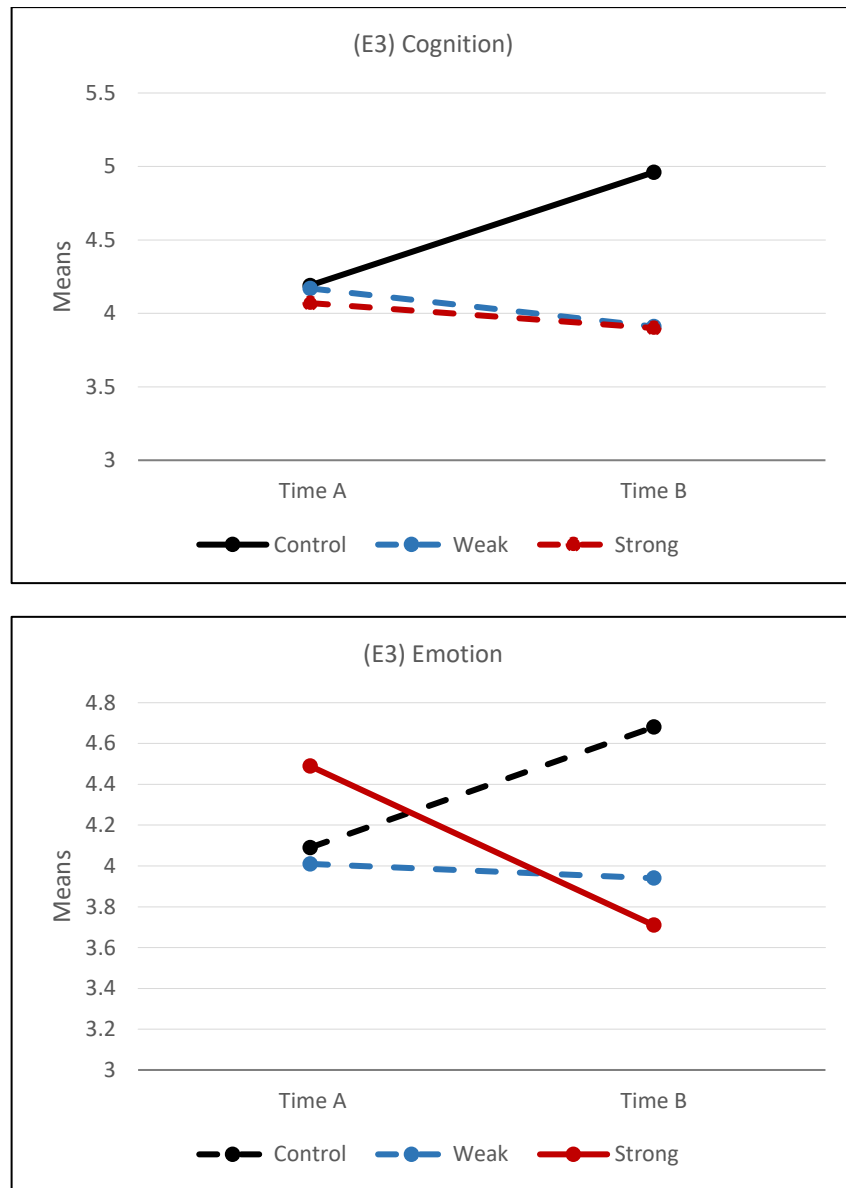


Figure 7.8.3-B1 (PH5)

Pattern of effectiveness in retention of cognition and emotion for three treatments over 18-32 days.

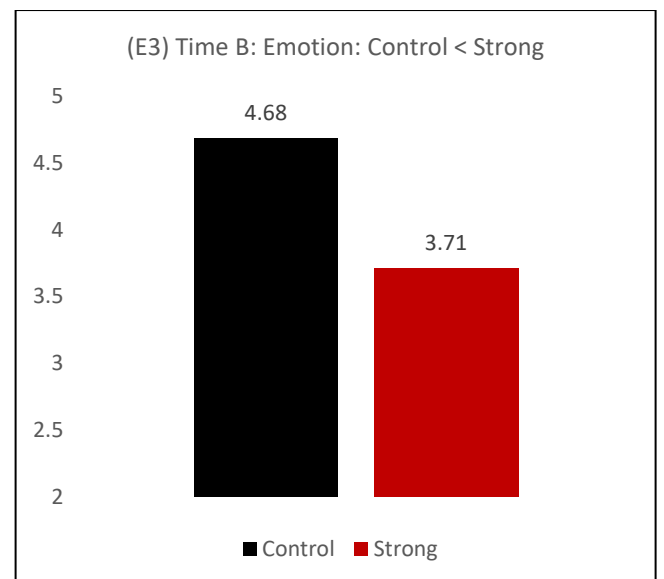
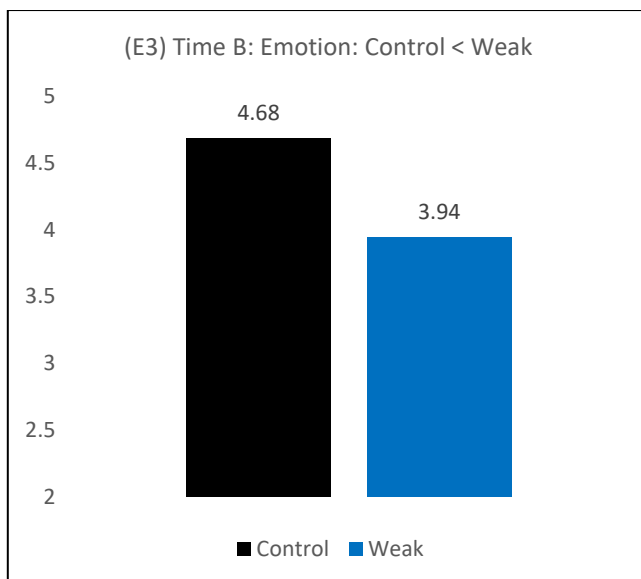
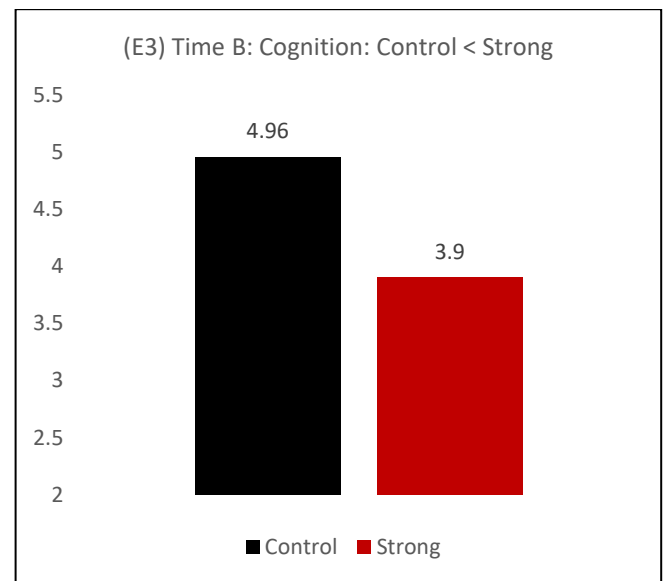
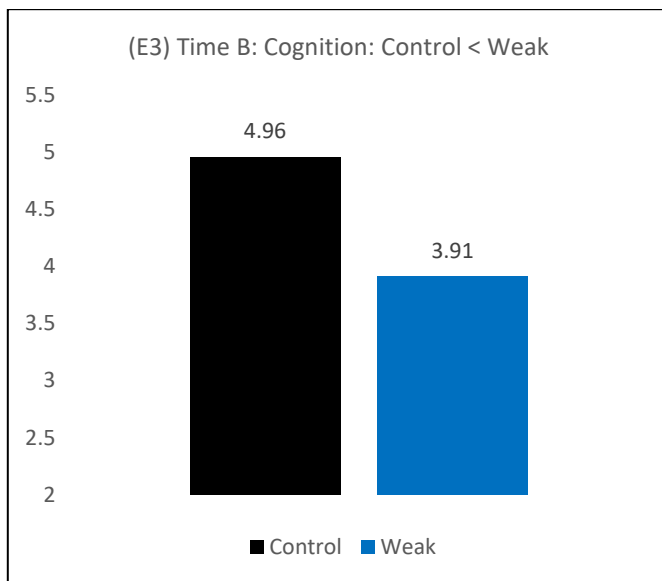


Figure 7.8.5-B2 (PH5)

*Significant differences in cognition and emotion between groups at Time B.
(Experiment Three – Longer Inoculation)*

7.8.3-B2 PH5: Statistical evidence

The same ANOVA with interaction calculation was again repeated with the dataset from the longer inoculation period (18-32 days). The results seeking interactions are as follows: cognition (Condition $F = 3.79$, $p = 0.02$; Time $F = .34$, $p = 0.55$; Condition*Time $F = 2.73$, $p = 0.06$) and emotion (Condition $F = 1.93$, $p = .14$; Time $F = .250$, $p = .61$; Condition*Time $F = 5.78$, $p = .004$).

As displayed in Figure 7.8.3-B1, neither inoculation treatment group (weak or strong) shows a significant decline between Time A and Time B. However, the control group, that is, the group that received no inoculation treatment does experience a significant growth in cognition between Time A and Time B ($t = -2.13$, $p = .037$). This effect, coupled with the (though not significant) negative direction of the weak and strong argument's cognition generation, results in the control being significantly more effective than the weak argument ($t = 3.13$, $p = .003$) at Time B. The same effect also applies to the strong argument, which is also significantly worse than the control at Time B ($t = 3.53$, $p = <.001$).

The experience of emotion is the same, where both the weak argument ($t = 2.20$, $p = .032$) and the strong argument groups ($t = 3.14$, $p = .003$) reported significantly less emotion at Time B compared to participants that were in the control group and received no inoculation treatment of any kind. Within groups, between Time A and Time B, the control and the weak argument groups do not experience significant changes. The strong argument group on the other hand does experience a significant drop in emotion ($t = 2.93$, $p = .005$). These results support Primary Hypothesis 5 (*'In the long term, both weak and strong inoculation treatments will be less effective than no inoculation in terms of maintaining cognition or emotion'*, in fact, the findings show that having administered any

inoculation treatment is worse than having done nothing at all. These effects are illustrated in Figure 7.8.3-B2 and presented in the tables below (Tables 7.8.3-B1 and 7.8.3-B2).

(E3) Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	27	4.19	.084	n/s
Weak	24	4.17		
Control	27	4.19	.350	n/s
Strong	30	4.07		
Weak	24	4.17	.289	n/s
Strong	30	4.07		

(E3) Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	27	4.96	3.137	$p = .003$
Weak	24	3.91		
Control	27	4.96	3.532	$p = <.001$
Strong	30	3.9		
Weak	24	3.91	.052	n/s
Strong	30	3.9		

(E3) Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	27	4.09	.255	n/s
Weak	24	4.01		
Control	27	4.09	-1.263	n/s
Strong	30	4.49		
Weak	24	4.01	-1.772	$p = .082$
Strong	30	4.49		

(E3) Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	27	4.68	2.204	$p = .032$
Weak	24	3.94		
Control	27	4.68	3.145	$p = .003$
Strong	30	3.71		
Weak	24	3.94	.996	n/s
Strong	30	3.71		

Table 7.8.3-B1 (PH5)

*Significance of observable differences, Time A and Time B
(cognition and emotion, long-term inoculation).*

(E3) Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.19	4.96	-2.136	$p = .037$
Weak	4.17	3.91	.739	n/s
Strong	4.07	3.9	.519	n/s

(E3) Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.09	4.68	-1.633	n/s
Weak	4.01	3.94	.314	n/s
Strong	4.49	3.71	2.937	$p = .005$

Table 7.8.3-B2 (PH5)

Significance of observable differences in cognitions and emotions within groups between Time A and Time B (long-term inoculation treatment).

7.8.4 EXPERIMENT TWO & THREE (COMBINED DATA)

7.8.4-A1 PH6: Higher subject relevance will amplify the effects of inoculation on purchase intent

The data set to consider for this hypothesis is the combined data of experiments two and three, splitting participants by smoking frequency. This metric, as in accordance with the literature discussed in Chapter 3 (3.3 Relevance), is used as an indicator of subject relevance. The results of the data from experiments two and three using panel data support this Hypothesis, though not in the way expected based on the literature discussed in Chapter Three and Chapter Five.

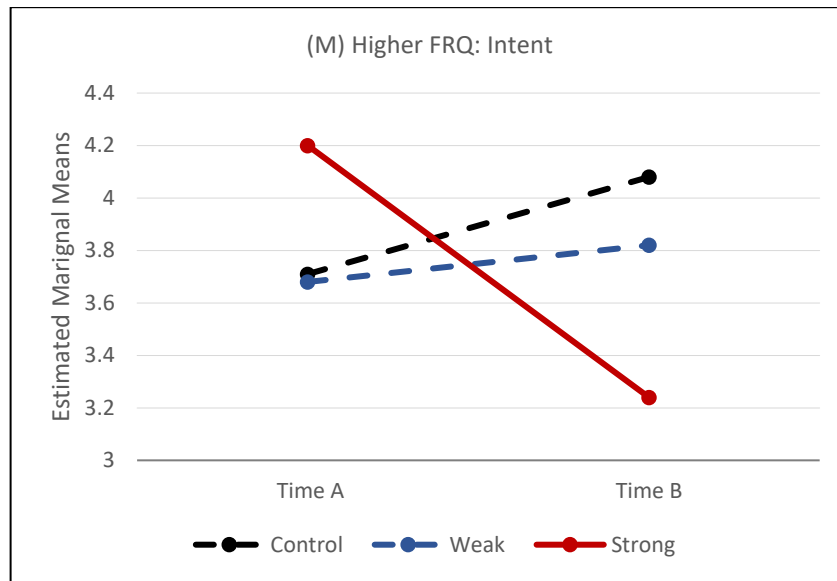


Figure 7.8.4-A1 (PH6)

Pattern of effectiveness in retention of Purchase Intention for three treatments – Higher relevance participants only

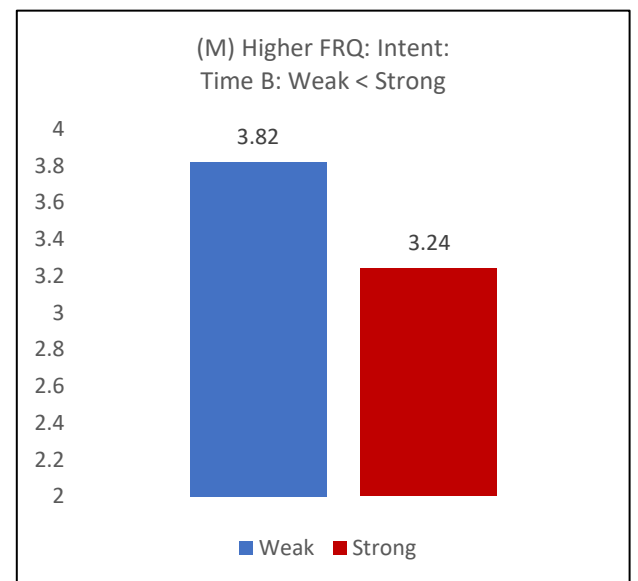
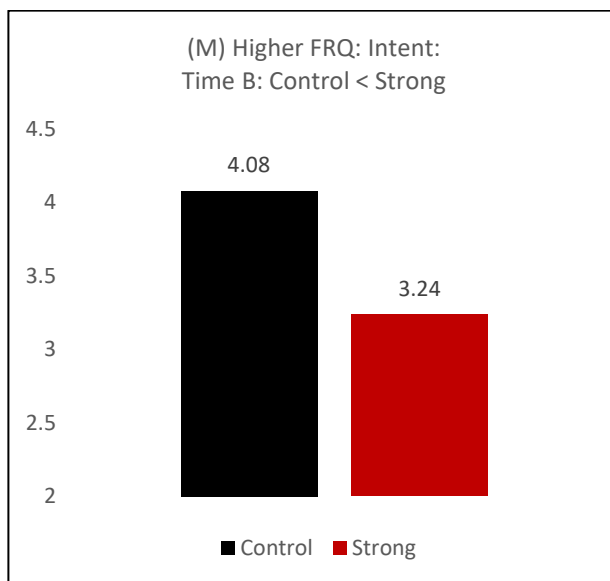


Figure 7.8.4-A2 (PH6)

Significant difference for intent between no argument and strong argument groups as well as weak argument and strong argument groups at Time B. (Higher relevance participants only)

7.8.4-A2 PH6: Statistical evidence

According to the findings discussed in this section, the Primary Hypothesis 6 (PH6) '*Higher subject relevance will amplify the effects of inoculation on purchase intent over time, making a weak inoculation the most effective long-term treatment.*' is only partially supported. It is in fact the sharper decline of the strong argument group that drove the difference between the inoculation treatments, unlike with the lower relevance group that saw no significant differences between the treatments. Analyzing the response from the low frequency smoker participants for whom the subject matter is less relevant, no significant effects are found at any time within any of the treatment groups (no argument (control), weak argument or strong argument. Regarding the lower relevance participant psychographic, an interactive ANOVA produced the following null result for intent: (Condition $F = 1.29$, $p = .27$; Time $F = 1.40$, $p = .23$; Condition*Time $F = .43$, $p = .64$).

The combined data from experiment two and three suggests that inoculation treatment, weak or strong, had no significant effects whatsoever on this participant psychographic (lower frequency / lower relevance) in terms of influencing purchase intent either immediately after inoculation (Time A) or after at least 12 days are allowed to pass before re-testing (Time B). These results are shown in Table 7.8.4-A1 and Table 7.8.4-A2.

(M) Lower FRQ: Time A: Intent					(M) Lower FRQ: Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	14	3.9	-.516	n/s	Control	14	3.95	.414	n/s
Weak	23	4.16			Weak	23	3.77		
Control	14	3.9	.163	n/s	Control	14	3.95	1.695	n/s
Strong	22	3.82			Strong	22	3.29		
Weak	23	4.16	.866	n/s	Weak	23	3.77	1.614	n/s
Strong	22	3.82			Strong	22	3.29		

Table 7.8.4-A1 (PH6)

*Significance of observable differences for intent, Time A and Time B
(Lower relevance participants only)*

(M) Lower FRQ: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.9	3.95	-0.76	n/s
Weak	4.16	3.77	1.109	n/s
Strong	3.82	3.29	1.538	n/s

Table 7.8.4-A2 (PH6)

*Within group longitudinal expression of Intent
(Lower relevance participants only)*

In running the same interactive ANOVA for the different inoculation groups (no inoculation, weak argument and strong argument) over time, only this time filtering for high relevance participants, the inoculation effect becomes significant across multiple dimensions (Condition $F = .67$, $p = .67$; Time $F = .66$, $p = .41$; Condition*Time $F = 5.6$, $p = .004$). Though not significantly different to no argument or a weak argument, the strong argument indeed produced the highest intent immediately after the inoculation treatment was administered at Time A ($M = 4.2$). As shown in Figure 7.8.4-A1 and displayed in Table 7.8.4-A4, there is a highly significant drop in the strong argument ($t = 3.72$, $p = <.001$) between Time A and Time B. While there was no significant difference between no

argument (the control) and the weak argument by Time B, both of these groups were significantly more effective in maintaining intent (control vs strong $t = 2.9$ $p = .005$; weak vs strong $t = 2.03$, $p = .04$) when compared to the strong argument group at Time B. These differences are presented in Figure 7.8.4-A2 and Table 7.8.4-A3.

(M) Higher FRQ: Time A: Intent					(M) Higher FRQ: Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	38	3.71	.089	n/s	Control	38	4.08	.684	n/s
Weak	24	3.68			Weak	24	3.82		
Control	38	3.71	-1.561	n/s	Control	38	4.08	2.904	$p = .005$
Strong	38	4.2			Strong	38	3.24		
Weak	24	3.68	-1.661	n/s	Weak	24	3.82	2.034	$p = .046$
Strong	38	4.2			Strong	38	3.24		

Table 7.8.4-A3 (PH6)

*Significance of observable differences for intent, Time A and Time B
(Higher relevance participants only)*

(M) Higher FRQ: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.71	4.08	-1.081	n/s
Weak	3.68	3.82	-.405	n/s
Strong	4.2	3.24	3.726	$p = <.001$

Table 7.8.4-A4 (PH6)

*Within group longitudinal expression of Intent within three conditions.
(Higher relevance participants only)*

7.8.4-B1 PH7: Higher subject relevance will amplify the effects of inoculation on Cognition and Emotion

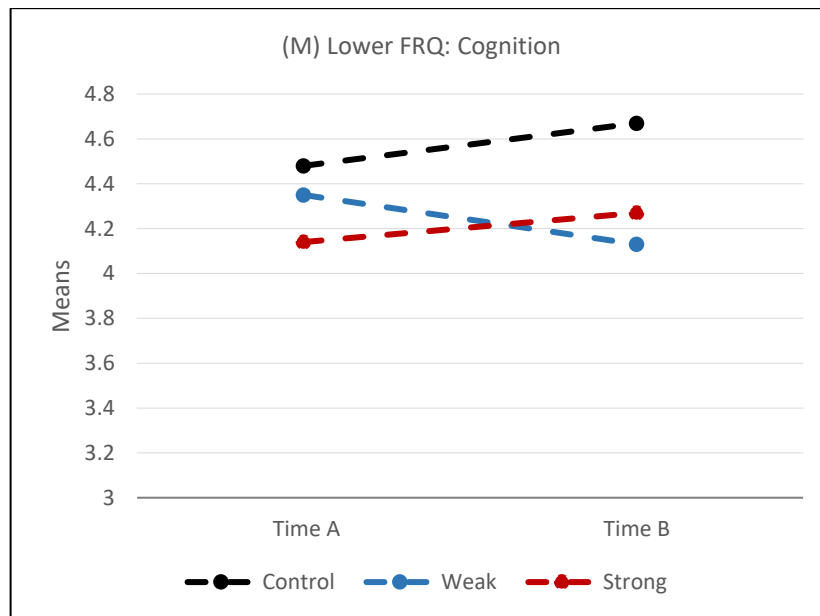
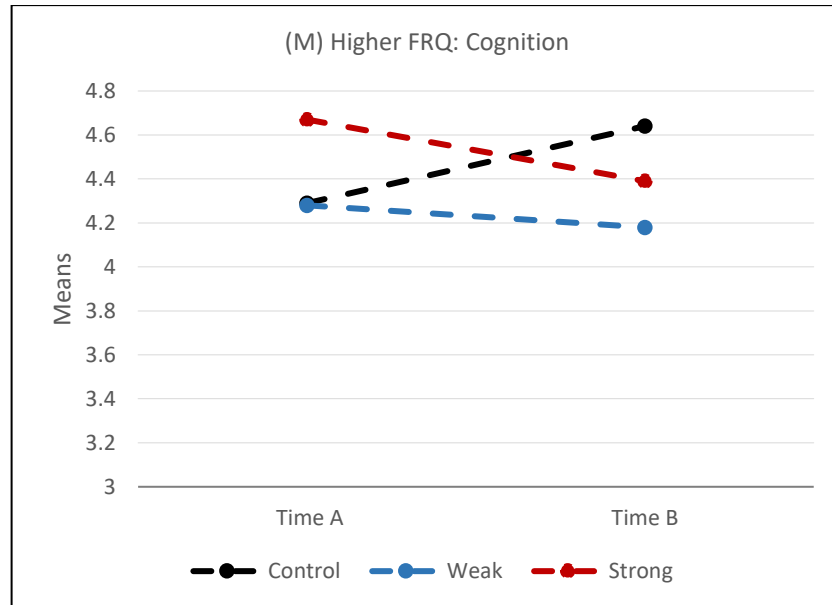


Figure 7.8.4-B1 (PH7)

Longitudinal effects of various treatment groups split by higher and lower smoker frequency (Subject relevance)

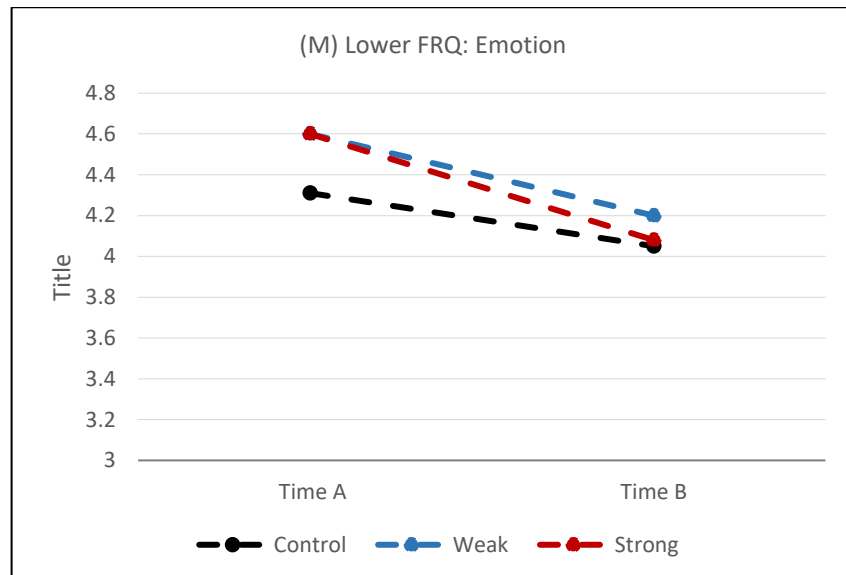
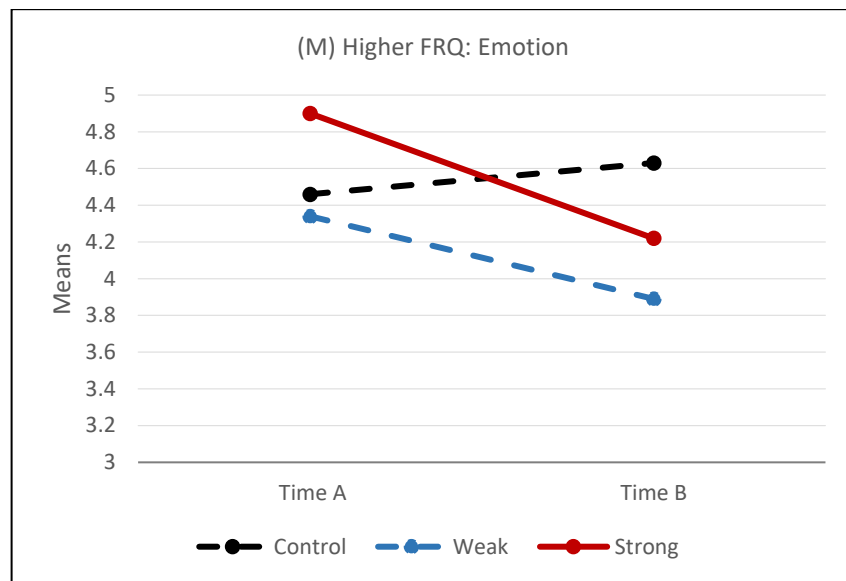


Figure 7.8.4-B2 (PH7)

Pattern of effectiveness in emotions generated for three treatments. (Higher relevance participants contrasted with lower relevance participants)

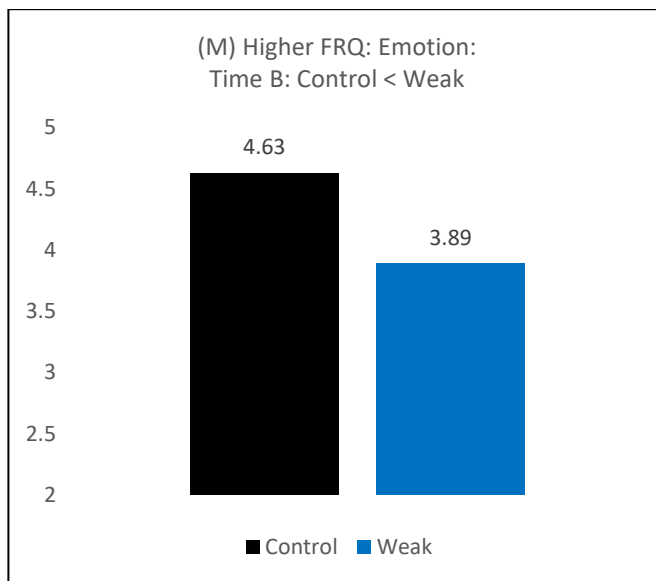


Figure 7.8.4-B3 (PH7)

Significant difference in emotion between the no argument group and the weak argument group at Time B (Higher relevance participants only)

7.8.4-B2 PH7: Statistical evidence

No statistically significant differences were found in any measures of cognition for either the higher topic relevance or the lower topic relevance group. The lack of significant findings is detailed in Table 7.8.4-B1 and 7.8.4-B2.

(M) Higher FRQ: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	38	4.29	.089	n/s
Weak	24	4.28		
Control	38	4.29	-1.225	n/s
Strong	38	4.67		
Weak	24	4.28	-1.186	n/s
Strong	38	4.67		

(M) Higher FRQ: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	38	4.64	1.379	n/s
Weak	24	4.18		
Control	38	4.64	.827	n/s
Strong	38	4.39		
Weak	24	4.18	-.643	n/s
Strong	38	4.39		

(M) Lower FRQ: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	14	4.48	.266	n/s
Weak	23	4.35		
Control	14	4.48	.658	n/s
Strong	22	4.14		
Weak	23	4.35	.523	n/s
Strong	22	4.14		

(M) Lower FRQ: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	14	4.67	1.327	n/s
Weak	23	4.13		
Control	14	4.67	.928	n/s
Strong	22	4.27		
Weak	23	4.13	-.434	n/s
Strong	22	4.27		

Table 7.8.4-B1 (PH7)

*Significance of observable differences for cognition, Time A and Time B
(Higher relevance participants only)*

(M) Higher FRQ: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.29	4.64	-1.138	n/s
Weak	4.28	4.18	.275	n/s
Strong	4.67	4.39	0.917	n/s

(M) Lower FRQ: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.48	4.67	-.332	n/s
Weak	4.35	4.13	.628	n/s
Strong	4.14	4.27	1.513	n/s

Table 7.8.4-B2 (PH7)

*No significant findings for cognition over any treatment in
either smoker frequency group.*

Such as in the measure of cognition, no significant findings were found between or within any of the treatment groups when measuring results from the low relevance participants. However, partial support for the Primary Hypothesis 7 (PH7) '*Higher subject relevance will amplify the effects of inoculation maintaining emotions and cognition*' was uncovered when measuring the emotions retained for the higher topic relevance participants. First, ANOVA interactions proved to be significant (Condition $F = 3.17$, $p = .04$; Time $F = 4.56$, $p = .03$; Condition*Time $F = 3.4$, $p = .03$). In line with general inoculation findings shown previously in this chapter (7.8.1), the strong argument group had an initially higher emotional response to the treatment when compared to the weak argument group ($t = -2.3$, $p = .02$) in the initial measure taken place at Time A. There was also a near significant difference at Time A between the no inoculation control and the strong argument ($t = -1.84$, $p = .06$).

Though the increase over time within the control group was not significant, and the decrease in the effectiveness of the weak argument was also not significant over time, the combined effect allowed for a significant difference to occur between the two groups, with the no inoculation control being significantly more effective at Time B ($t = 2.36$, $p = .02$) (Figure 7.8.4-B3 and Table 7.8.4-B3). The higher relevance group results showed the strong inoculation treatment had no significant difference with either the weak argument group or the control group at Time B. However, the strong argument itself did decay significantly between Time A and Time B ($t = 3.4$ $p = <.001$) as found in Figure 7.8.4-B2 and Table 7.8.4-B4.

(M) Higher FRQ: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	38	4.46	.398	n/s
Weak	24	4.34		
Control	38	4.46	-1.849	$p = .068$
Strong	38	4.9		
Weak	24	4.34	-2.305	$p = .025$
Strong	38	4.9		

(M) Higher FRQ: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	38	4.63	2.360	$p = .022$
Weak	24	3.89		
Control	38	4.63	1.621	n/s
Strong	38	4.22		
Weak	24	3.89	-1.499	n/s
Strong	38	4.22		

(M) Lower FRQ: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	14	4.31	-.716	n/s
Weak	23	4.6		
Control	14	4.31	-.665	n/s
Strong	22	4.6		
Weak	23	4.6	.010	n/s
Strong	22	4.6		

(M) Lower FRQ: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	14	4.05	-.573	n/s
Weak	23	4.2		
Control	14	4.05	-.081	n/s
Strong	22	4.08		
Weak	23	4.2	.457	n/s
Strong	22	4.08		

Table 7.8.4-B3 (PH7)

*Significance of observable differences for emotion, Time A and Time B
(Higher relevance participants only)*

(M) Higher FRQ: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.46	4.63	-.610	n/s
Weak	4.34	3.89	1.762	n/s
Strong	4.9	4.22	3.4	$p = .<001$

(M) Lower FRQ: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.31	4.05	.605	n/s
Weak	4.6	4.2	1.459	n/s
Strong	4.6	4.08	1.513	n/s

Table 7.8.4-B4 (PH7)

Within group differences over time by subject relevance (Higher & Lower)

7.8.5 EXPERIMENT FOUR

7.8.5-A1 PH8: Increasing subject relevance and enhancing the delivery medium will improve the effectiveness of both weak and strong inoculation arguments in terms of purchase intent. This experiment uses an advertisement and a topic more relevant to the student subjects.

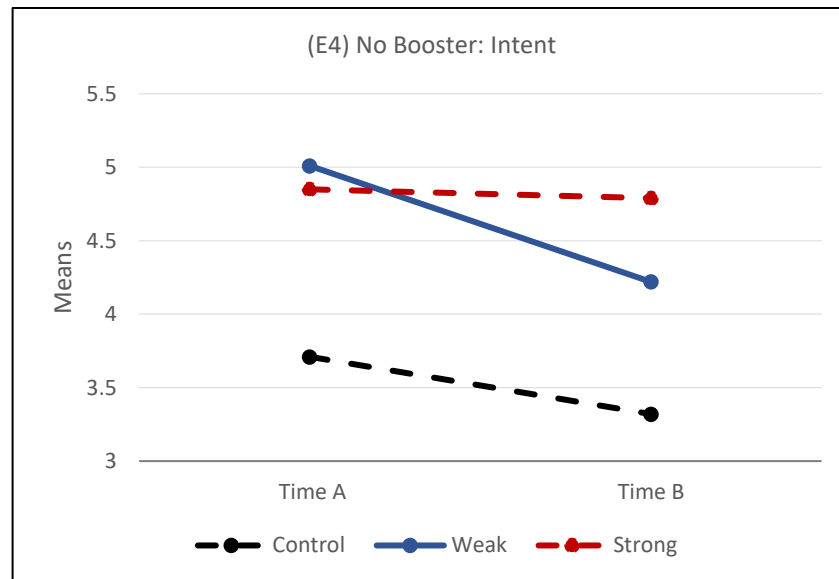


Figure 7.8.4-A1

Three treatment groups maintenance of purchase intent over time showing a significant drop in the effectiveness of the weak inoculation argument.

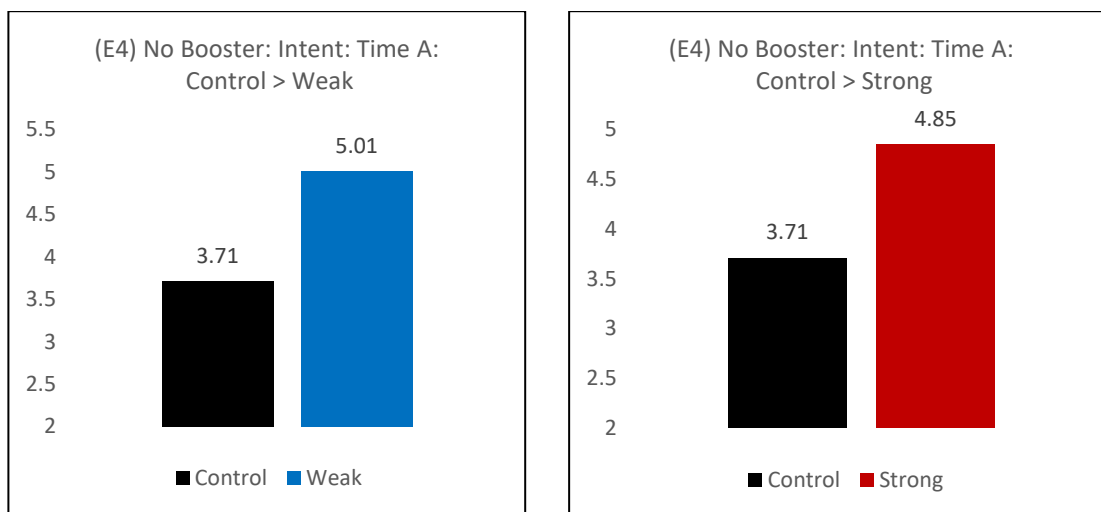


Figure 7.8.4-A2 (PH8)

Significant differences at Time A between the weak argument and no inoculation as well as the strong argument and no inoculation control.

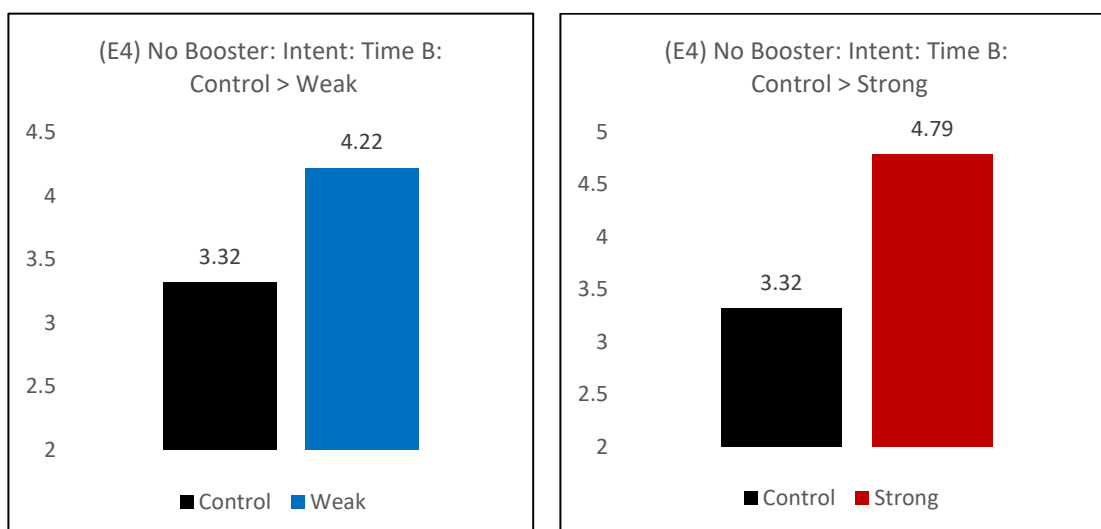


Figure 7.8.4-A3 (PH8)

Significant differences at Time B between the weak argument and no inoculation as well as the strong argument and no inoculation control

7.8.5-A2 PH8: Statistical evidence

The analysis detailed below confirms Primary Hypothesis 8 (PH8) '*Increasing subject relevance and enhancing the delivery medium will improve the effectiveness of both weak and strong inoculation arguments in terms of purchase intent*'. ANOVA interaction testing of the data for this hypothesis produced highly significant results (Condition $F = 13.35$, $p = <.001$; Time 2.64 , $p = .106$; Condition*Time $F = .97$, $p = .38$). In further exploration of the effects using t-tests, there are several significant findings. Experiment Four, with a higher subject relevance and enhanced delivery medium results in both the weak inoculation argument ($t = -3.09$, $p = <.001$) and the strong inoculation argument ($t = -3.09$, $p = .003$) being significantly more effective in generating purchase intent immediately after the treatment administration (at Time A) compared to the no inoculation control. These significant differences are illustrated in Figure 7.8.5-A2 and presented in Table 7.8.5-A1.

The results of the retests two weeks later at Time B show that the strong argument maintained its effectiveness with no significant decline over the testing period. At Time B, the strong argument was also still significantly more effective than the no inoculation control ($t = 3.67$, $p = <.001$).

Oddly, unlike with any other previous experiment, as depicted in Figure 7.8.5-A1, the weak argument group experienced a significant decrease in purchase intent between Time A and Time B ($t = 2.17$, $p = .03$). Despite this within-group decline, the weak argument is also significantly more effective than the no inoculation control at Time B ($t = -2.2$, $p = .033$). These significant differences are illustrated in 7.8.5-A3 and Table 7.8.4-A1 and 7.8.4-A2.

(E4) No Booster: Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	21	3.71	-3.464	$p = .001$
Weak	25	5.01		
Control	21	3.71	-3.093	$p = .003$
Strong	31	4.85		
Weak	25	5.01	.470	n/s
Strong	31	4.85		

(E4) No Booster: Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	21	3.32	-2.202	$p = .033$
Weak	25	4.22		
Control	21	3.32	-3.671	$p = .001$
Strong	31	4.79		
Weak	25	4.22	-1.522	n/s
Strong	31	4.79		

Table 7.8.4-A1 (PH8)

Significance of observable differences in purchase intent between the different treatment conditions contrasting Time A and Time B.

(E4) No Booster: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.71	3.32	.536	n/s
Weak	5.01	4.22	2.175	$p = .035$
Strong	4.85	4.79	0.185	n/s

Table 7.8.4-A2 (PH8)

Within group significant difference in condition effectiveness over time.

7.8.5-B1 PH9: Higher subject relevance, presented through enhanced delivery, will stimulate maintenance of more favorable cognition and emotion in response to inoculation treatments

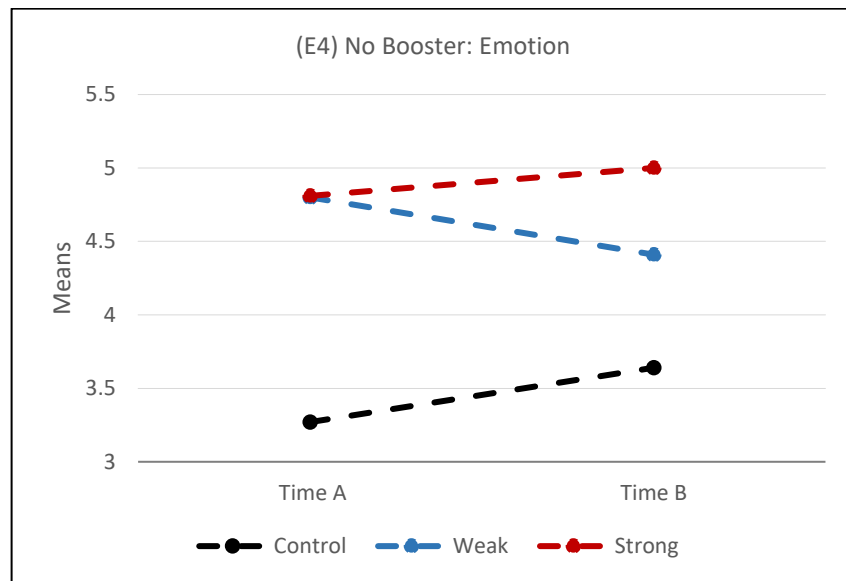
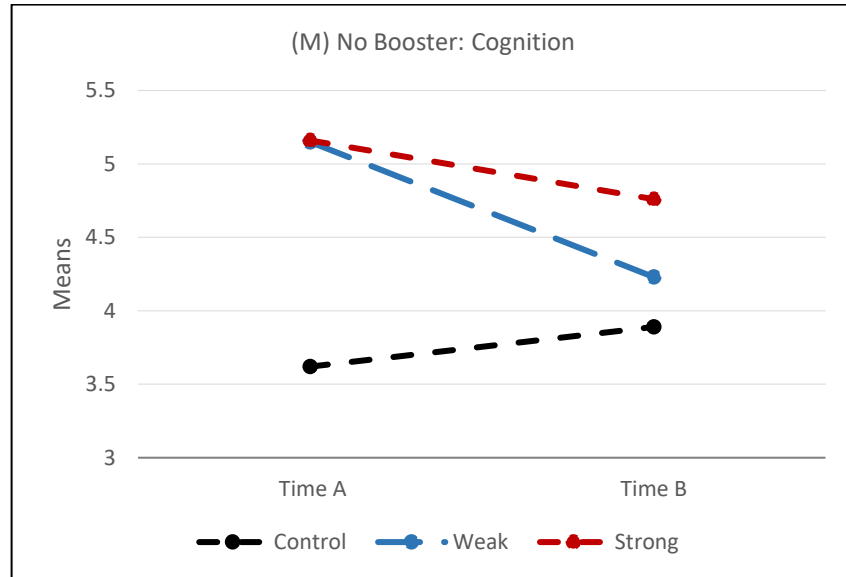


Figure 7.8.4-B1 (PH9)

Patterns of effectiveness in retention of cognition and emotion for three treatments over 14 days.

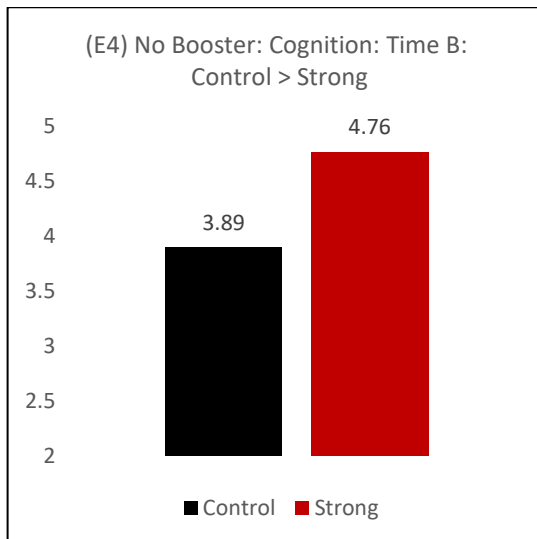
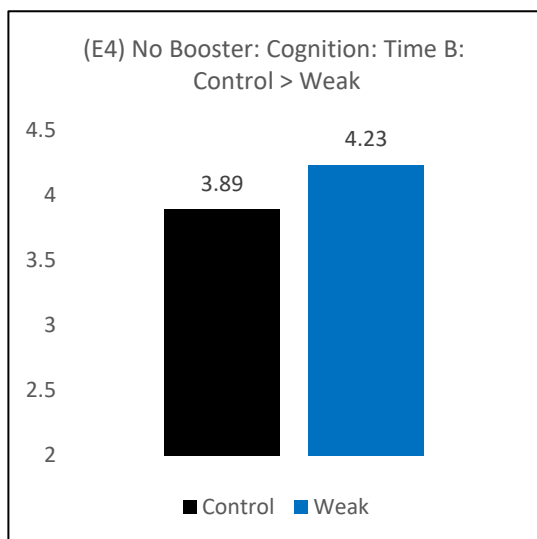
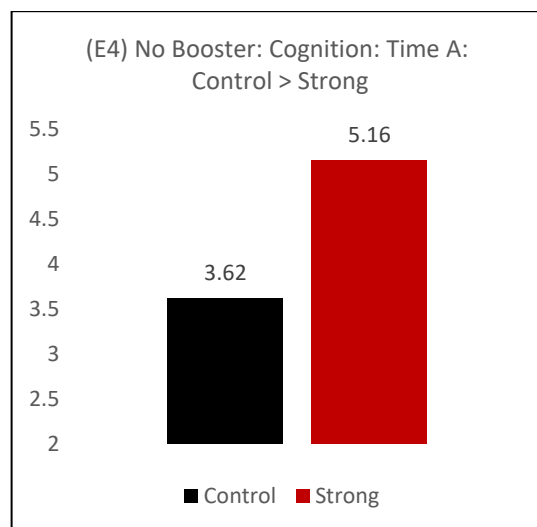
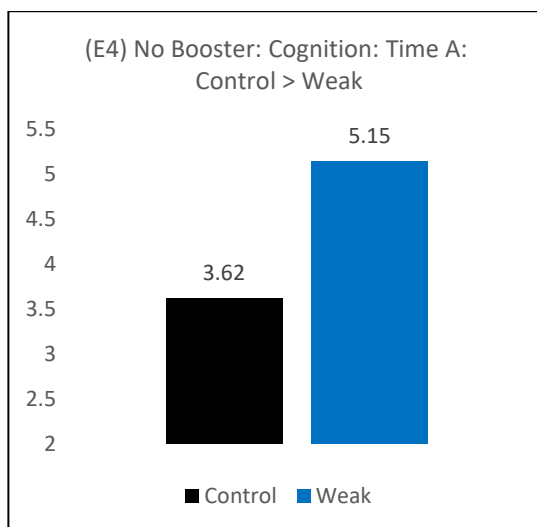


Figure 7.8.4-B2 (PH9)

Significant differences in cognition found between various treatment groups over time.

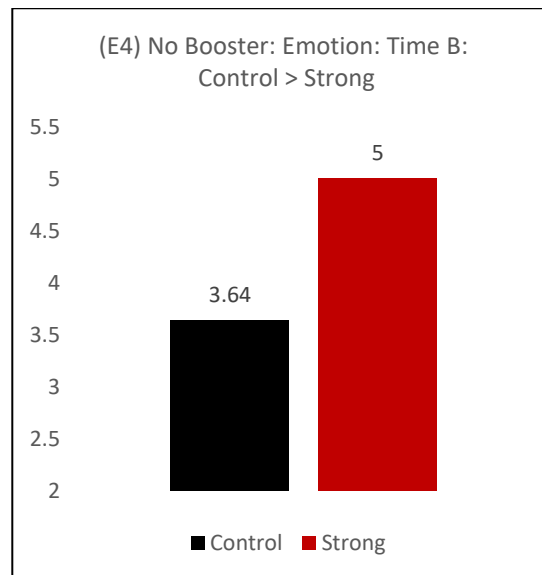
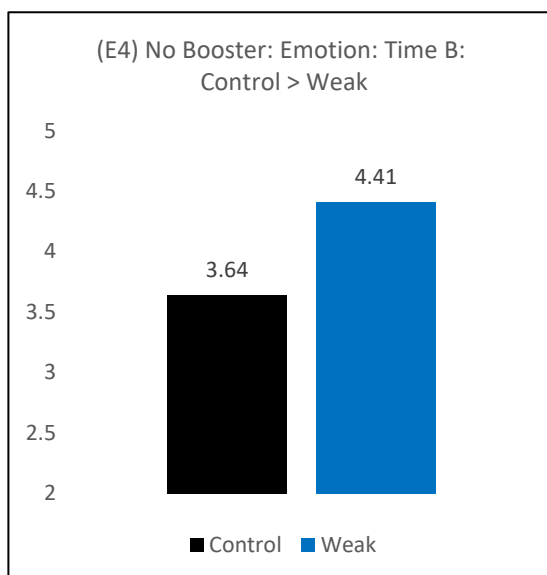
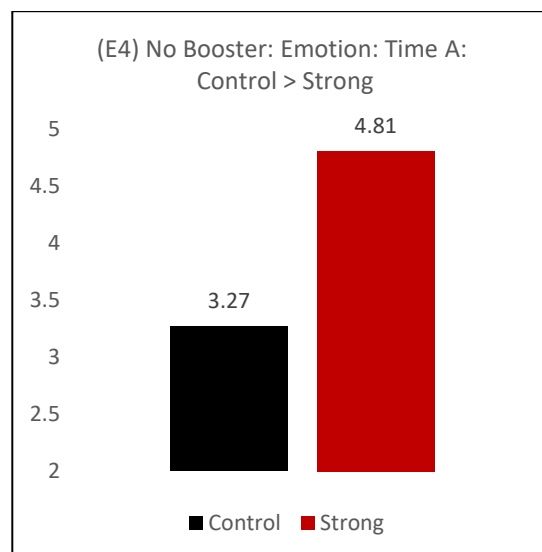
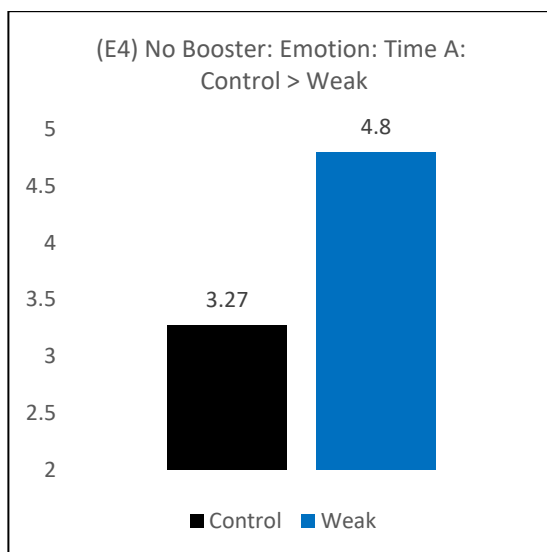


Figure 7.8.4-B3 (PH9)

Significant differences in emotion found over time between various treatment groups.

7.8.5-B2 PH9: Statistical evidence

The statistical analysis conducted on the data from Experiment Four has produced results strongly in support of Primary Hypothesis 9 (PH9) '*Higher subject relevance, presented through enhanced delivery, will stimulate maintenance of more favorable cognition and emotion in response to inoculation treatments*'. The evidence discussed below shows that both strong and weak inoculation arguments both maintained cognitions and emotions over time better than the no inoculation control.

In addressing the fairing of cognition in face of the various treatment conditions, ANOVA interaction analysis was first completed. This analysis produced an encouraging highly significant result (Condition $F = 14.55$, $p = <.001$; Time $F = 1.04$, $p = .31$; Condition*Time $F = 1.3$, $p = .27$). In following this lead with a series of t-tests, immediately after the inoculation treatments were administered at Time A, both the weak inoculation argument ($t = -4.54$, $p = <.001$) and the strong inoculation argument ($t = -4.12$, $p = <.001$) were found to be significantly more effective when respectively compared to the no inoculation control. As shown in Figure 7.8.5-B2 at the reconnect measure (Time B), two weeks after the initial testing, the initial result is maintained. The weak argument was still significantly more effective than the control ($t = -2.07$, $p = .044$), while the strong argument also maintained its significant effectiveness over the control ($t = -2.36$, $p = .02$). The results presented in this section thus far are presented below in Table 7.8.5-B1 and Table 7.8.5-B2 and are followed by the analysis of emotion.

(E4) No Booster: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	21	3.62	-4.544	$p = <.001$
Weak	25	5.15		
Control	21	3.62	-4.123	$p = <.001$
Strong	31	5.16		
Weak	25	5.15	-.048	n/s
Strong	31	5.16		

(E4) No Booster: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	21	3.89	-2.076	$p = .044$
Weak	25	4.23		
Control	21	3.89	-2.364	$p = .022$
Strong	31	4.76		
Weak	25	4.23	-.324	n/s
Strong	31	4.76		

Table 7.8.5-B1 (PH9)

Between group differences in cognition at Time A and Time B.

(E4) No Booster: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	3.62	3.89	-.609	n/s
Weak	5.15	4.23	1.759	$p = .085$
Strong	5.16	4.76	1.274	n/s

Table 7.8.5-B2 (PH9)

Longitudinal effects on cognition within group for three treatment types.

Turning to the analysis of emotion in the data from Experiment Four, ANOVA testing for interaction is again conducted. This testing produced a significant interaction in the conditions of the experiment (Condition $F = 20.53$, $p = <.001$; Time $F = .086$, $p = .77$; Condition*Time $F = 1.38$, $p = .25$). The result here shows that significant differences between the condition treatments are certain to exist. Exploring this further with t-tests, it's first seen that both the weak argument ($t = -4.39$, $p = <.001$) and the strong argument ($t = -4.48$, $p = <.001$) are respectively significantly more effective in producing emotional responses when compared to the no inoculation control at Time A, the testing immediately

after the treatments were administered. Between Time A and Time B, none of the treatment group conditions would manifest any significant change in emotion within the groups. At Time B, between group significant differences remain, with the trends being preserved. Once again, the weak inoculation argument is significantly more effective in maintaining emotion than the no inoculation control ($t = -2.03$, $p = .048$). The same is also true for the strong inoculation treatment, which is also significantly more effective in maintaining emotions than the no inoculation control ($t = 4.24$, $p = <.001$). These emotion findings are depicted in Figure 7.8.4-B2 and outlined in Tables 7.8.4-B3 and 7.8.4-B4.

(E4) No Booster: Time A: Emotion					(E4) No Booster: Time B: Emotion				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	21	3.27	-4.397	$p = <.001$	Control	21	3.64	-2.033	$p = .048$
Weak	25	4.8			Weak	25	4.41		
Control	21	3.27	-4.480	$p = <.001$	Control	21	3.64	-4.245	$p = <.001$
Strong	31	4.81			Strong	31	5		
Weak	25	4.8	-.022	n/s	Weak	25	4.41	-1.937	$p = .059$
Strong	31	4.81			Strong	31	5		

Table 7.8.5-B3 (PH9)

Significant differences found in levels of emotion between treatment groups at Time A and Time B.

(E4) No Booster: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	3.27	3.64	-.877	n/s
Weak	4.8	4.41	1.207	n/s
Strong	4.81	5	-0.711	n/s

Table 7.8.5-B4 (PH9)

Lack of significant longitudinal changes in emotion within any group

7.8.6 EXPERIMENT FIVE

7.8.6-A1 PH10: A booster message will improve the effectiveness of inoculation treatments on purchase intent

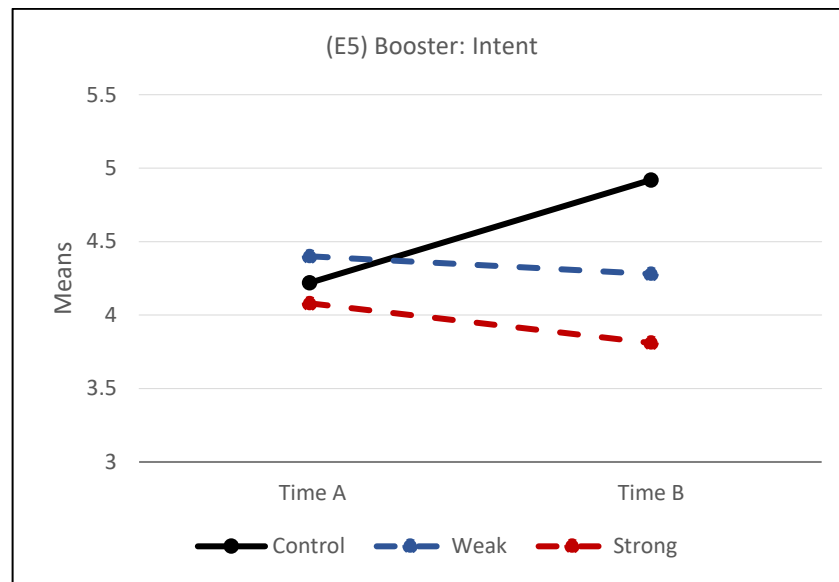


Figure 7.8.6-A1 (PH10)

Significant increase over time found for the no inoculation control group's response to purchase intent after exposure to a booster.

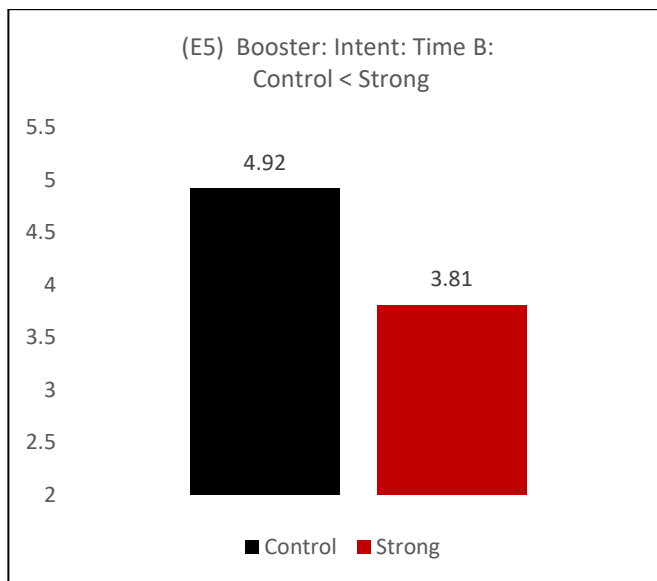


Figure 7.8.6-A2 (PH10)

No inoculation control found to be significantly more effective in maintaining purchase intent over time compared to the strong inoculation argument after exposure to a booster.

7.8.6-A2 PH10 Statistical evidence

The findings from analysis of the data from Experiment Five does not support the Primary Hypothesis 10 (PH10) 'A booster message will improve the effectiveness of inoculation treatments on purchase intent'. Based on the findings from Experiment Five with comparisons made to Experiment Four, it appears that a booster message does not improve the effects of inoculation on purchase intent, but rather, the booster message will speed up the longitudinal effects of the respective inoculation treatment.

Though the initial ANOVA inquiry does not show any statistical differences (Condition $F = 2.13$, $p = .12$; Time $F = .18$, $p = .66$; Condition*Time $F = 1.16$, $p = .31$), further t-test analysis have led to a significant difference found between the no inoculation control and the strong argument at Time B ($t = 2.48$, $p = .018$) with no inoculation being significantly more effective in maintain purchase intent (Figure 7.8.6-A2). Though both the strong and weak argument effects remain relatively stable over time, it is the within group significant increase in the no inoculation control treatment between Time A and Time B ($t = -2.09$, $p = .04$) that drives the effect. These findings are listed in Tables 7.8.6-A1 and 7.8.6-A2.

(E5) Booster: Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	12	4.22	-.432	n/s
Weak	33	4.4		
Control	12	4.22	.381	n/s
Strong	22	4.08		
Weak	33	4.4	.954	n/s
Strong	22	4.08		

(E5) Booster: Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	12	4.92	1.428	n/s
Weak	33	4.28		
Control	12	4.92	2.489	$p = .018$
Strong	22	3.81		
Weak	33	4.28	1.147	n/s
Strong	22	3.81		

Table 7.8.6-A1 (PH10)

Between group differences in response to purchase intent

(E4) No Booster: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	4.22	4.92	-2.092	$p = .048$
Weak	4.4	4.28	.349	n/s
Strong	4.08	3.81	.659	n/s

Table 7.8.6-A2 (PH10)

Significant increase found in effectiveness of no inoculation influence over purchase intent after exposure to booster message.

7.8.6-B1 PH11: A booster message will stimulate more favorable cognition and emotion in response to inoculation treatments

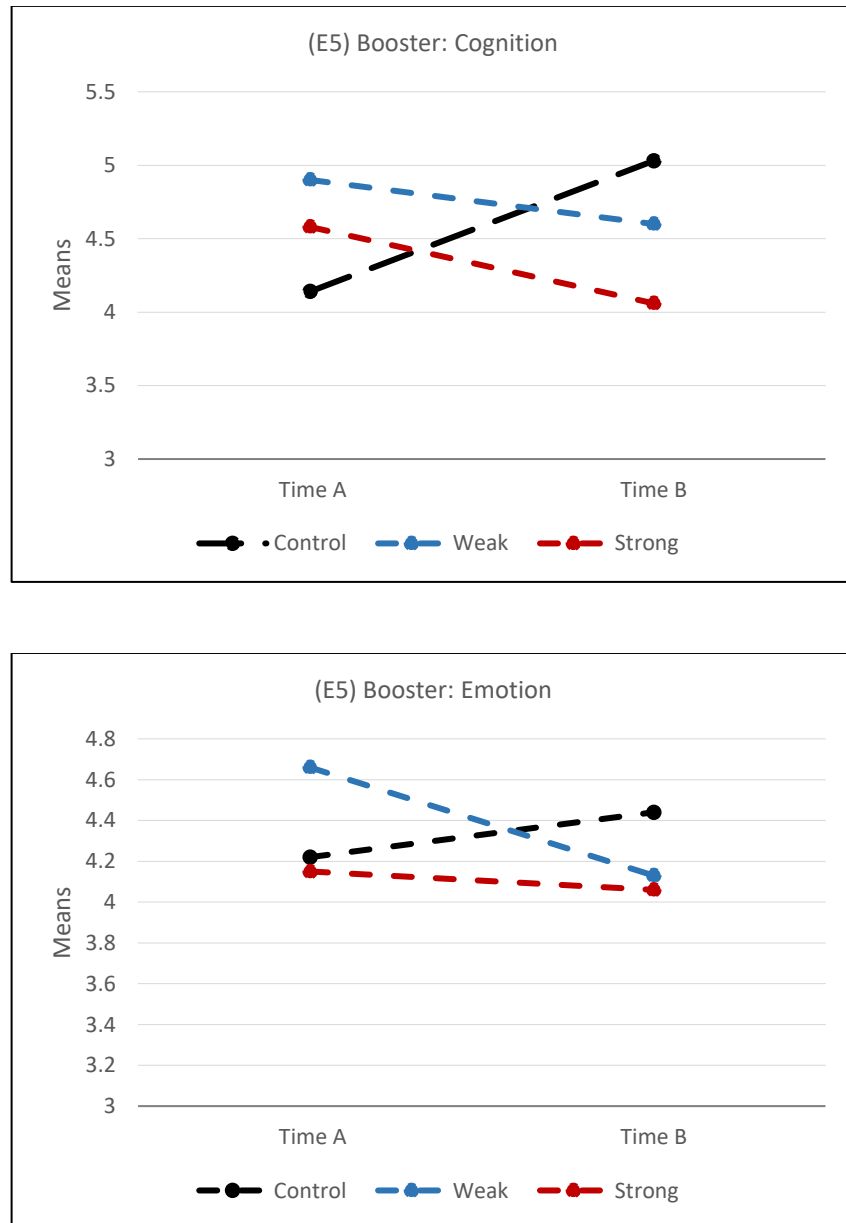


Figure 7.8.6-B1 (PH11)

Patterns of effectiveness in cognitive and emotional retention comparing multiple treatment groups over time after exposure to a booster message.

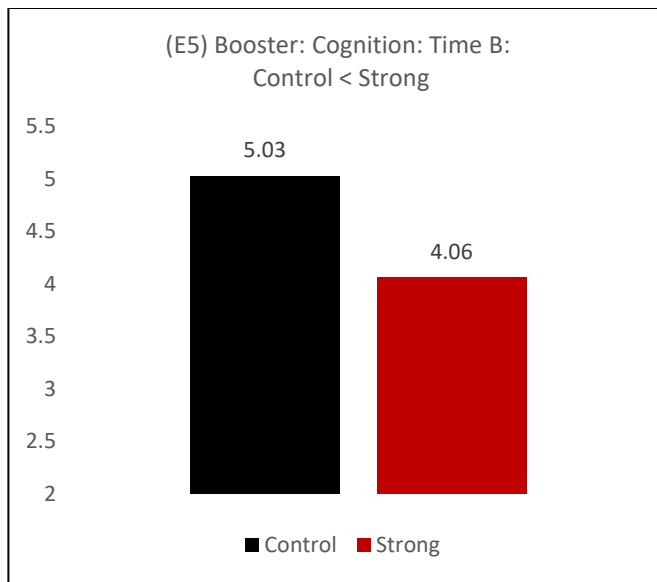


Figure 7.8.6-B2 (PH11)

Significantly higher cognition expressed by participants in the no inoculation control at Time B after having been exposed to a booster message.

7.8.6-B1 PH11: Statistical evidence

The following data analysis concerned with testing Primary Hypothesis 11 (PH11) has led to hypothesis (PH11) 'A booster message will stimulate more favorable cognition and emotion in response to inoculation treatments' not being supported. None of the treatment groups had any within change over the testing period, meaning that the booster did not increase the effectiveness of the inoculation treatments. ANOVA testing did not show any significant interactions when measuring emotions or cognitions, however a pattern of interest was found for cognition (Condition $F = 1.64$, $p = .19$; Time $F = .008$, $p = .93$; Condition*Time $F = 2.76$, $p = .06$). Only one between group difference was found at Time B (Figure 7.8.6-B2), with the no inoculation control being significantly more effective than the strong argument in terms of maintaining cognition ($t = 2.22$, $p = .03$). The statistical findings are presented below in Table 7.8.6-B1 and Table 7.8.6-B2.

(E5) Booster: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	12	4.14	-1.794	$p = .080$
Weak	33	4.9		
Control	12	4.14	-1.058	n/s
Strong	22	4.58		
Weak	33	4.9	1.030	n/s
Strong	22	4.58		

(E5) Booster: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	12	5.03	1.068	n/s
Weak	33	4.6		
Control	12	5.03	2.221	$p = .034$
Strong	22	4.06		
Weak	33	4.6	1.467	n/s
Strong	22	4.06		

(E5) Booster: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	12	4.22	-1.055	n/s
Weak	33	4.66		
Control	12	4.22	.163	n/s
Strong	22	4.15		
Weak	33	4.66	1.422	n/s
Strong	22	4.15		

(E5) Booster: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	12	4.44	.799	n/s
Weak	33	4.13		
Control	12	4.44	.899	n/s
Strong	22	4.06		
Weak	33	4.13	.199	n/s
Strong	22	4.06		

Table 7.8.6-B1 (PH11)

Between group comparisons of cognitions and emotions at Time A and Time B showcasing the various treatments after exposure to a booster message before Time B.

(E5) Booster: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.14	5.03	-1.954	$p = .064$
Weak	4.9	4.6	.997	n/s
Strong	4.58	4.06	1.404	n/s

(E5) Booster: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.22	4.44	-.551	n/s
Weak	4.66	4.13	1.7	n/s
Strong	4.15	4.06	0.225	n/s

Table 7.8.6-B2 (PH11)

Within group longitudinal effects on cognition and emotion after exposure to a booster message before Time B.

7.9 ADDRESSING THE SUBSIDIARY HYPOTHESES

The following section illustrates the outcomes of the moderator tests conducted to address the subsidiary hypotheses concerned with moderator effects driven by gender, age, relationship status, education, and income. Data for these moderators was retrieved from a combination of experiments Two and Three, where the time delay was the only difference between the experiments. This was done due to the high participant drop-out and the need for larger group sizes in the testing of the moderators. The reasons for this methodological decision are detailed throughout Chapter Six as well as being addressed in Chapter Eight, under the limitation's header.

Subsidiary Hypotheses Summary	
SH1	Males and females express the same pattern of intent generated by inoculation.
SH2	After inoculation, males will maintain more cognition over time than females.
SH3	Over time, females will have a more favorable emotional reaction than males after exposure to either weak or strong inoculation treatments.
SH4	Attitude inoculation will be more effective in maintaining purchase intent of older people than that of younger people, both immediately after exposure and in the long term.
SH5	Cognitive responses generated by weak and strong inoculation treatments will be more stable over time for younger participants compared to older participants.
SH6	SH6: Emotions will drop more swiftly for older participants than for younger participants, both for the weak and strong inoculation treatments.
SH7	SH7: The effects of inoculation on maintenance of purchase intent will be intensified for people in relationships.

SH8 SH8: Emotions and cognitions will fade more for single participants than for participants in relationships.

SH9 SH9: Inoculation treatments will be less effective in maintaining purchase intent for higher educated participants compared to lower educated participants.

SH10 SH10: Cognitive effects of inoculation will be more pronounced in lower educated participants

SH11 SH11: The emotional response to inoculation treatments will fade more severely for higher educated persons than for lower educated persons.

SH12 SH12: Inoculation treatments will be less effective in maintaining purchase intent for higher income participants compared to lower income participants.

SH13 SH13: Cognitive effects of inoculation will be more pronounced in lower income participants

SH14 SH14: The emotional response to inoculation treatments will fade more severely for higher income participants than for lower income participants.

7.9.1 GENDER BASED SUBSIDIARY HYPOTHESES

The following data is presented in order to address the subsidiary hypothesis concerned with potential gender differences guiding the effects of attitude inoculation treatments.

7.9.1-A1 SH1: Males and females express the same pattern of intent generated by inoculation.



Figure 7.9.1-A1 (SH1)

Pattern of effectiveness in retention of purchase intentions for three treatments over time (12-32 days), showing males

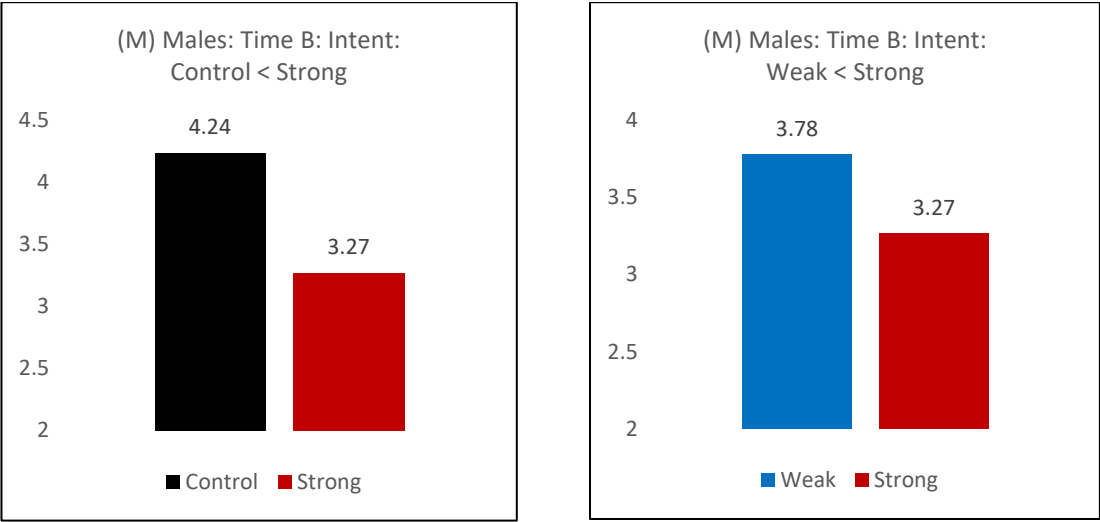


Figure 7.1.1-A2 (SH1)

Intent differences between male groups at Time B.

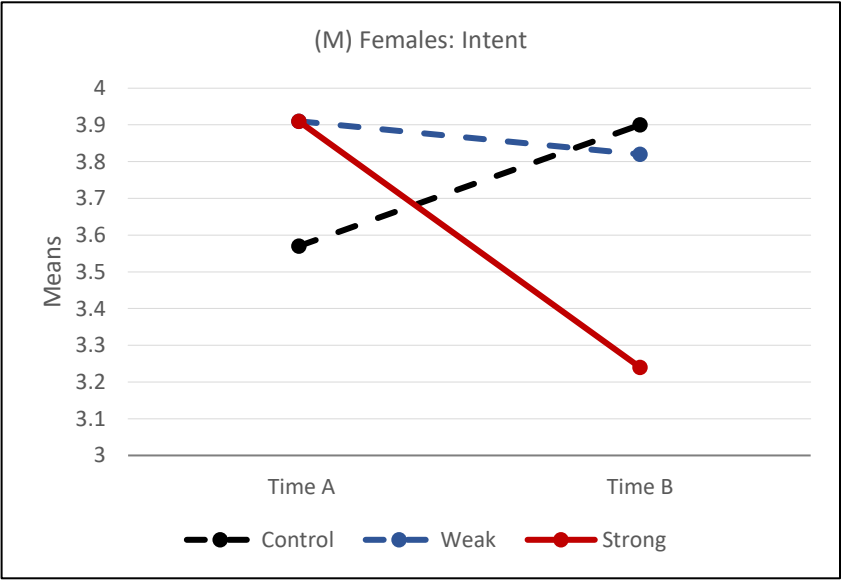


Figure 7.9.1-A3 (SH1)

Pattern of effectiveness in retention of purchase intentions for three treatments over time (12-32 days), showing females

7.9.1-A2 SH1: Statistical evidence

The patterns within groups exhibited both for males: (Condition $F = 1.566$, $p = .21$; Time $F = 2.52$, $p = .11$; Condition*Time $F = 3.537$, $p = .031$) and females: (Condition $F = .5$, $p = .6$; Time $F = .36$, $p = .54$; Condition*Time $F = 1.86$, $p = .15$), are consistent and provide partial support toward Subsidiary Hypothesis 1 (SH1) '*Males and females express the same pattern of intent generated by inoculation*'. Both males ($t = 3.9$, $p < .001$), and females ($t = 1.97$, $p = .05$) experienced a significant drop in the strong argument between Time A and Time B as illustrated in Figure 7.9.1-A1 and Figure 7.9.1-A3. However contrary to the hypothesis, as shown in Figure 7.9.1-A2, unlike females, male participants experienced significantly less intent at Time B between the weak argument group and the strong argument group ($t = 3.33$, $p = .002$), as well as between the no argument group and the strong argument group ($t = 2.01$, $p = .049$). This means that for males, undoubtably the strong arguments generate less intent than weak arguments or no arguments after time passes. For females, no significant differences are found between groups at Time B.

(M) Males: Time A: Intent					(M) Males: Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	22	4.03	.300	n/s	Control	22	4.24	1.377	n/s
Weak	28	3.92			Weak	28	3.78		
Control	22	4.03	-.513	n/s	Control	22	4.24	3.335	$p = .002$
Strong	30	4.21			Strong	30	3.27		
Weak	28	3.92	-1.000	n/s	Weak	28	3.78	2.010	$p = .049$
Strong	30	4.21			Strong	30	3.27		

Table 7.9.1-A1 (SH1)

Significance of observable differences for purchase intent between groups of males at Time A and Time B.

(M) Males: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	4.03	4.24	-.503	n/s
Weak	3.92	3.78	.466	n/s
Strong	4.21	3.27	3.907	$p = <.001$

Table 7.9.1-A2 (SH1)

Significance of observable differences for purchase intent for males between Time A and Time B.

(M) Females: Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	30	3.57	-.848	n/s
Weak	19	3.91		
Control	30	3.57	-.857	n/s
Strong	30	3.91		
Weak	19	3.91	.003	n/s
Strong	30	3.91		

(M) Females: Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	30	3.9	.163	n/s
Weak	19	3.82		
Control	30	3.9	1.866	$p = .067$
Strong	30	3.24		
Weak	19	3.82	1.704	n/s
Strong	30	3.24		

Table 7.9.1-A3 (SH1)

Significance of observable differences for purchase intent between groups of females at Time A and Time B.

(M) Females: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.57	3.9	-.806	n/s
Weak	3.91	3.82	.211	n/s
Strong	3.91	3.24	1.975	$p = .05$

Table 7.9.1-A4 (SH1)

Significance of observable differences for purchase intent for females between Time A and Time B.

7.9.1-B SH2: Statistical evidence

As listed in the tables of this section, no significant differences were found between groups or within groups for either males or females, rendering the Subsidiary Hypothesis SH2. *'Inoculation treatments will generate a higher amount of cognition in males compared to females'* null.

(M) Males: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	22	4.62	1.135	n/s
Weak	28	4.24		
Control	22	4.62	.103	n/s
Strong	30	4.59		
Weak	28	4.24	-1.281	n/s
Strong	30	4.59		

(M) Males: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	22	4.53	.951	n/s
Weak	28	4.21		
Control	22	4.53	.208	n/s
Strong	30	4.46		
Weak	28	4.21	-.913	n/s
Strong	30	4.46		

(M) Females: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	30	4.13	-.656	n/s
Weak	19	4.42		
Control	30	4.13	-.536	n/s
Strong	30	3.91		
Weak	19	4.42	.142	n/s
Strong	30	3.91		

(M) Females: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	30	4.73	1.715	n/s
Weak	19	4.07		
Control	30	4.73	1.490	n/s
Strong	30	3.24		
Weak	19	4.07	-.424	n/s
Strong	30	3.24		

Table 7.9.1-B1 (SH2)

Observable differences in cognition between no argument, weak argument and strong argument groups for males and females Time A and Time B.

(M) Males: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.62	4.53	-.503	n/s
Weak	4.24	4.21	.466	n/s
Strong	4.59	4.46	0.491	n/s

(M) Females: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.13	4.73	-1.681	n/s
Weak	4.42	4.07	.744	n/s
Strong	3.91	3.24	.285	n/s

Table 7.9.1-B2 (SH2)

Within group comparisons for males and females from Time A to Time B.

7.9.1-C1 SH3: Females will have a more favorable emotional reaction than males after exposure to either weak or strong inoculation treatments

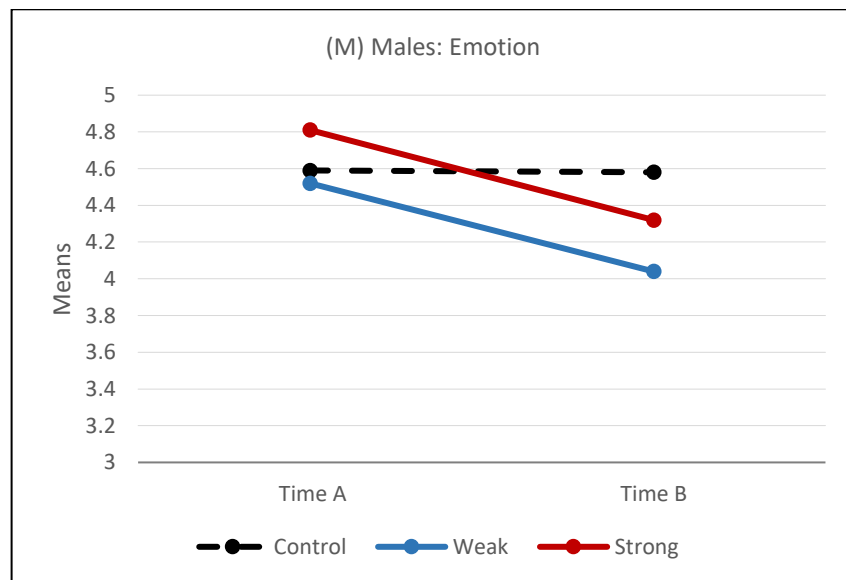


Figure 7.9.1-C1 (SH3)

Effectiveness of three treatments over time showing emotion expressed by female participants only

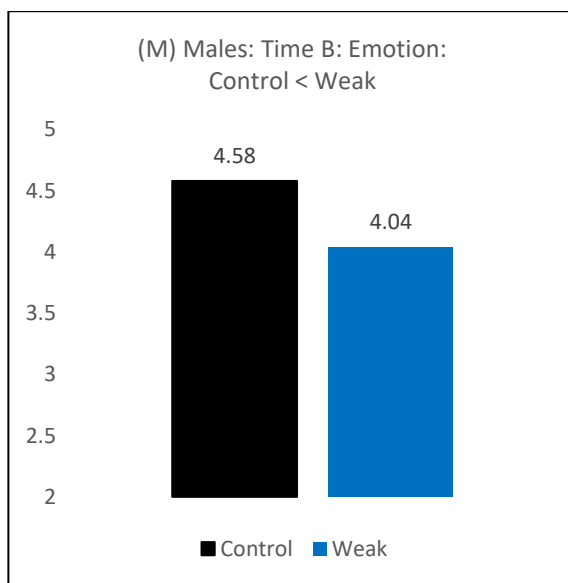


Figure 7.9.1-C2 (SH3)

Between group statistical difference in emotion experienced by male participants at Time B.

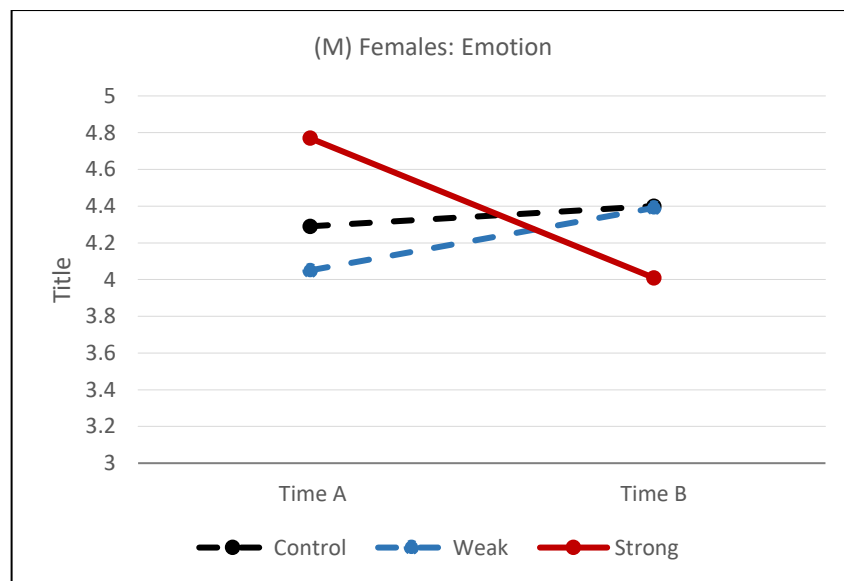


Figure 7.9.1-C3 (SH3)

Within group comparisons for female's emotion from Time A to Time B.

7.9.1-C2 SH3: Statistical evidence

Maintaining a participant split by gender, ANOVA testing for interactions revealed a significant effect in the measure of time (Condition $F = 1.74$, $p = .17$; Time $F = 4.75$, $p = .03$; Condition*Time $F = .98$, $p = .37$) when looking at the maintenance of emotion in male participants. Using the same ANOVA testing for interactions, data of female participants did not produce any significant results (Condition $F = .26$, $p = .77$; Time $F = 3.05$, $p = .08$; Condition*Time $F = 2.15$, $p = .12$). Further analysis using t-testing revealed immediately after the inoculation treatment, neither the males nor females produced any significant difference in emotion generated by no argument (control), weak argument or the strong argument. The males and females in the strong argument group both experienced the effect of inoculation similarly, where the males ($t = 2.09$, $p = .04$), and the females in the strong argument groups ($t = 2.8$, $p = .007$) experienced a significant decrease in emotion over time (Figure 7.9.1-C1 and Figure 7.9.1-C3).

The no inoculation control did not change significantly over time for either the males or the females. While females in the weak argument group did not experience any significant change in emotion between Time A and Time B, the males in the weak argument group had experienced a significant drop in emotion in this same time period ($t = 1.96$, $p = .05$) (Figure 7.9.1-C1). According to these findings, Subsidiary Hypothesis (SH3) ‘*Over time, females will have a more favorable emotional reaction than males after exposure to either weak or strong inoculation arguments*’, is only partially supported as the strong argument manifests the same trend in both males and females. Only the weak argument is experienced differently by males and females, with males having a negative long-term reaction to a weak argument when compared to the no inoculation control ($t = 2.02$, $p = .048$). The decay in the weak argument manifests in its own effectiveness over time and when compared to no argument at all (the control).

(M) Males: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	22	4.59	.231	n/s
Weak	28	4.52		
Control	22	4.59	-.787	n/s
Strong	30	4.81		
Weak	28	4.52	-1.055	n/s
Strong	30	4.81		

(M) Males: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	22	4.58	2.029	$p = .048$
Weak	28	4.04		
Control	22	4.58	.974	n/s
Strong	30	4.32		
Weak	28	4.04	-1.396	n/s
Strong	30	4.32		

(M) Females: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	30	4.29	0.314	n/s
Weak	19	4.39		
Control	30	4.29	-1.528	n/s
Strong	30	4.77		
Weak	19	4.39	-1.318	n/s
Strong	30	4.77		

(M) Females: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	30	4.4	.956	n/s
Weak	19	4.05		
Control	30	4.4	1.242	n/s
Strong	30	4.01		
Weak	19	4.05	.143	n/s
Strong	30	4.01		

Table 7.9.1-C1 (SH3)

Observable differences in emotion between no argument (control), weak argument and strong argument groups for males and females Time A and Time B.

(M) Males: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.59	4.58	-5.03	n/s
Weak	4.52	4.04	1.966	$p = .054$
Strong	4.81	4.32	2.09	$p = .041$

(M) Females: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.29	4.4	-.316	n/s
Weak	4.05	4.39	1.149	n/s
Strong	4.77	4.01	2.807	$p = .007$

Table 7.9.1-C2 (SH3)

*Within group longitudinal emotional results
for males and females between Time A to Time B.*

7.9.2 AGE BASED SUBSIDIARY HYPOTHESIS

7.9.2-A1 SH4: Attitude inoculation will be more effective in maintaining the purchase intent of older people than of younger people, both immediately after exposure and in the long term.

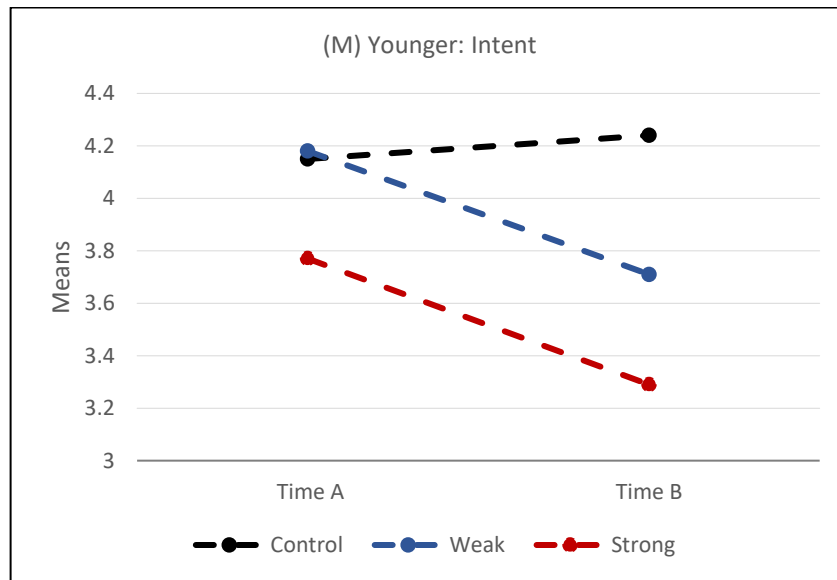


Figure 7.9.2-A1 (SH4)

Means for purchase intent of younger participants displayed by condition group.

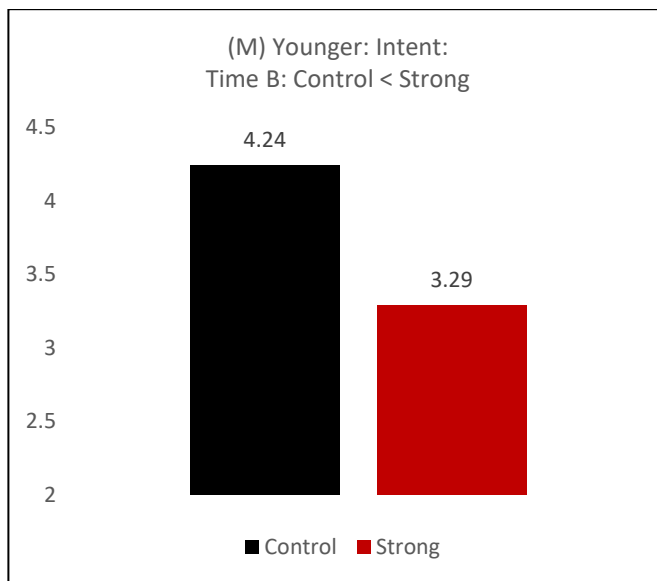


Figure 7.9.2-A2 (SH4)

Significant difference between no inoculation and strong inoculation at Time B for younger participants.

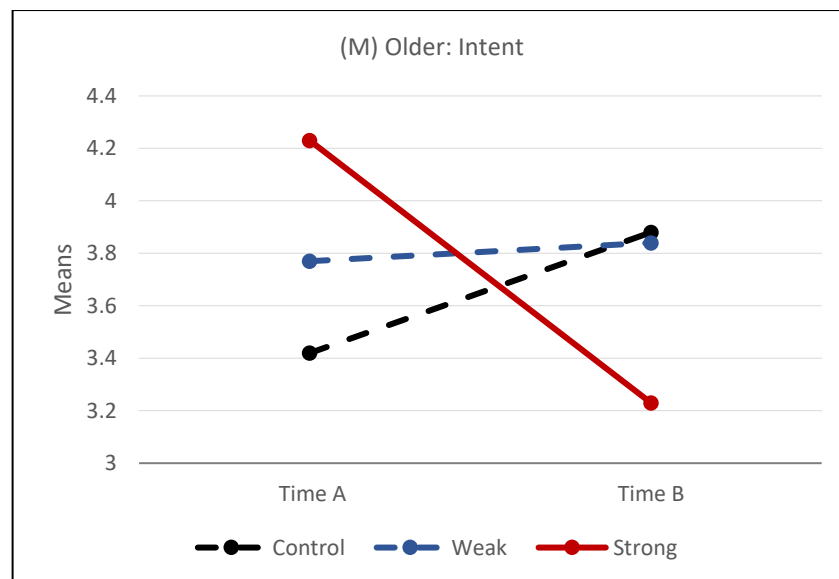


Figure 7.9.2-A3 (SH4)

Means for purchase intent of three older participant groups.

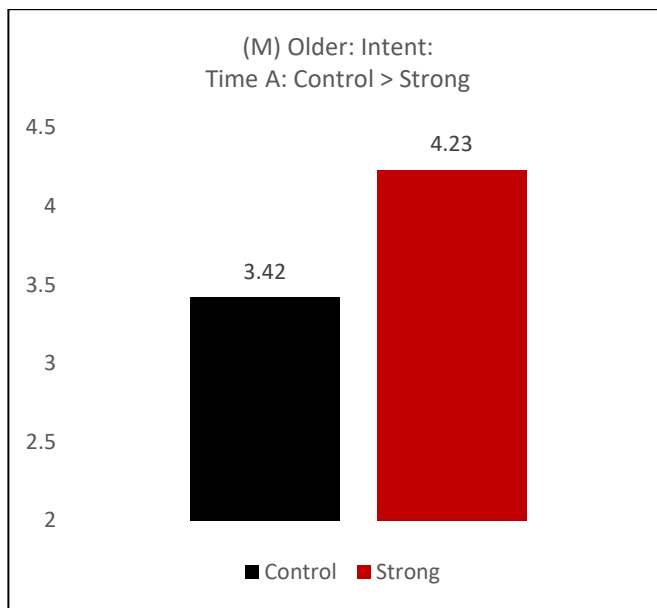


Figure 7.9.2-A4 (SH4)

Significant difference between no inoculation and strong inoculation at Time A for older participants.

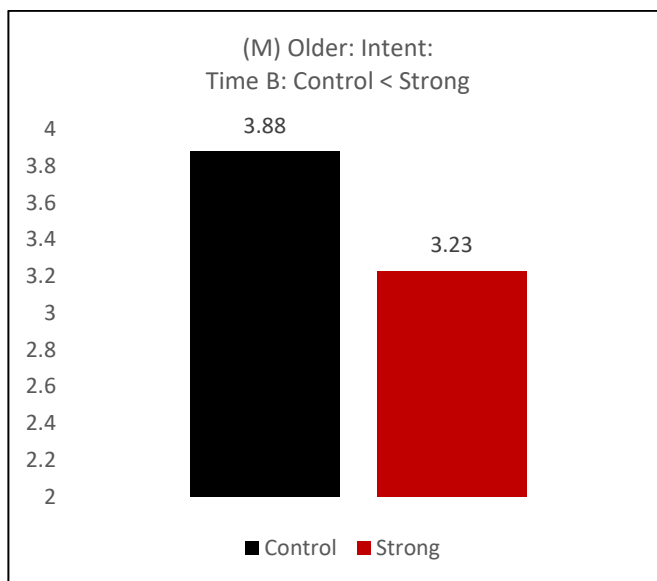


Figure 7.9.2-A5 (SH4)

Significant difference between no inoculation and strong inoculation at Time B for older participants.

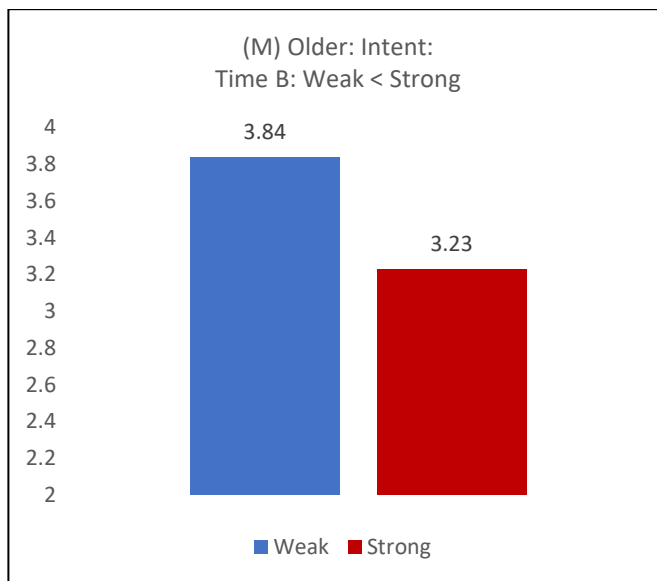


Figure 7.9.2-A6 (SH4)

Significant difference between weak inoculation and strong inoculation at Time B for older participants.

7.9.2-A2 SH4: Statistical evidence

When filtering the younger participants that took part in the survey experiments (persons under 40), and running ANOVA with interaction, no significant interactions were found when assessing purchase intent (Condition $F = 2.61$, $p = .078$; Time $F = 1.33$, $p = .25$; Condition*Time $F = .59$, $p = .55$). Because the conditions did indicate an approach toward significance, I went ahead with conducting within group and between group analysis using t-tests. As seen in Table 7.9.2-A1 no significant between group differences would be found at Time A. At Time B however, as illustrated in Figure 7.9.2-A2 and detailed in Table 7.9.2-A1, the control (no inoculation treatment) was significantly higher than the strong inoculation argument ($t = 2.18$, $p = .03$). While this effect took place because of mean score shifts within the groups, none of the shifts are significant when comparing Time A and Time B within the same group. Within-group results from younger participants are displayed in Table 7.9.2-A2 and illustrated in Figure 7.9.2-A1.

(M) Younger: Time A: Intent					(M) Younger: Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	24	4.15	-.055	n/s	Control	24	4.24	1.113	n/s
Weak	17	4.18			Weak	17	3.71		
Control	24	4.15	.865	n/s	Control	24	4.24	2.188	$p = .034$
Strong	22	3.77			Strong	22	3.29		
Weak	17	4.18	.894	n/s	Weak	17	3.71	1.186	n/s
Strong	22	3.77			Strong	22	3.29		

Table 7.9.2-A1 (SH4)

Observable differences between groups (no inoculation, weak inoculation, and strong inoculation) purchase intent for younger participants.

(M) Younger: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	4.15	4.24	-.180	n/s
Weak	4.18	3.71	1.188	n/s
Strong	3.77	3.29	1.214	n/s

Table 7.9.2-A2 (SH4)

Observable differences within groups (no inoculation, weak inoculation, and strong inoculation) for purchase intent of younger participants between Time A and Time B.

In continuing exploring the Subsidiary Hypothesis, SH4, the same analysis that was run for the younger participants was once again conducted when filtering for older participants (those over the age of 40). The interactive ANOVA measure was once more conducted for measuring the effect of purchase intent expressed by the various inoculation condition groups (no inoculation control, weak argument, and strong argument). In this instance, a significant interaction was found between the condition and time (Condition $F =$

.22, $p = .79$; Time $F = .77$, $p = .38$; Condition*Time $F = 6.55$, $p = .002$). Based on this result, I continued with further analysis using t-tests within groups and between groups. Firstly, addressing the between group findings, immediately after the inoculation treatment, at Time A, the strong argument was found to be significantly more effective than the no inoculation control ($t = -2.38$, $p = .02$). This finding is illustrated in Figure 7.9.2-A4 and Table 7.9.2-A3. By the re-test date at Time B (14-32 after the initial inoculation), this effect had flipped, with the no inoculation control being significantly more effective in terms of maintaining purchase intent ($t = 2.4$, $p = .01$), compared to the strong inoculation treatment. This phenomenon is illustrated in Figure 7.9.2-A5 and detailed in Table 7.9.2-3. Again, at the Time B measure, as seen in Figure 7.9.2-A6 and outlined in Table 7.9.2-A3, the weak argument was also found to be significantly more effective than the strong argument ($t = 2.4$, $p = .02$).

(M) Older: Time A: Intent					(M) Older: Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	28	3.42	-.979	n/s	Control	28	3.88	.105	n/s
Weak	30	3.77			Weak	30	3.84		
Control	28	3.42	-2.380	$p = .020$	Control	28	3.88	2.534	$p = .014$
Strong	38	4.23			Strong	38	3.23		
Weak	30	3.77	-1.621	n/s	Weak	30	3.84	2.402	$p = .019$
Strong	38	4.23			Strong	38	3.23		

Table 7.9.2-A3 (SH4)

Observable significant differences between groups (no inoculation, weak inoculation, and strong inoculation) for purchase intent of older participants between Time A and Time B.

(M) Older: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.42	3.88	-1.194	n/s
Weak	3.77	3.84	-.248	n/s
Strong	4.23	3.23	4.302	$p = <.001$

Table 7.9.2-A4 (SH4)

Observable differences within groups (no inoculation, weak inoculation, and strong inoculation) for purchase intent of older participants between Time A and Time B.

Furthermore, as illustrated in Figure 7.9.2-A3, t-tests analyzing the means within groups between Time A and Time B revealed that while the weak argument group and no inoculation control group did not experience any significant change in this time, the participants in the strong argument inoculation group experienced a sharp decline in their purchase intent over this same time ($t = 4.3$, $p = <.001$). These findings are detailed in Table 7.9.2-A4. In summary of the findings, at Time B, no inoculation (control) is better in maintaining purchased intent than a strong inoculation. This means that while a weak inoculation will not have a significant effect on young people, a strong inoculation is, in fact, detrimental and according to this finding one is better to not use any inoculation on younger people. Though the same downward trend for the strong inoculation is mirrored for older participants, a weak inoculation treatment is more significant long term for this older group compared to a strong inoculation. Subsidiary Hypothesis 4 (SH4) '*Attitude inoculation will be more effective in maintaining the purchase intent of older people than that of younger people, both immediately after exposure and in the long term*' is supported according to the analysis discussed here.

7.9.2-B1 SH5: Cognitive responses generated by weak and strong inoculation treatments will be more stable over time for younger participants compared to older participants.

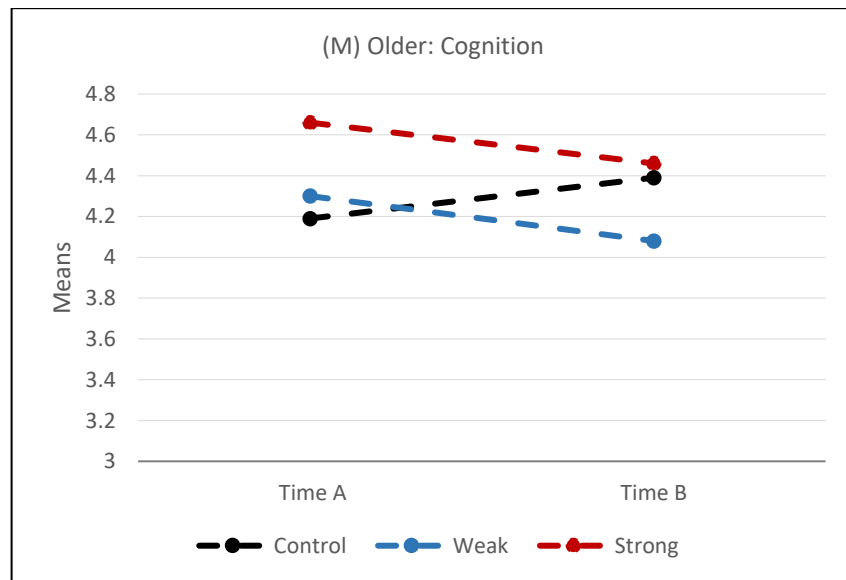
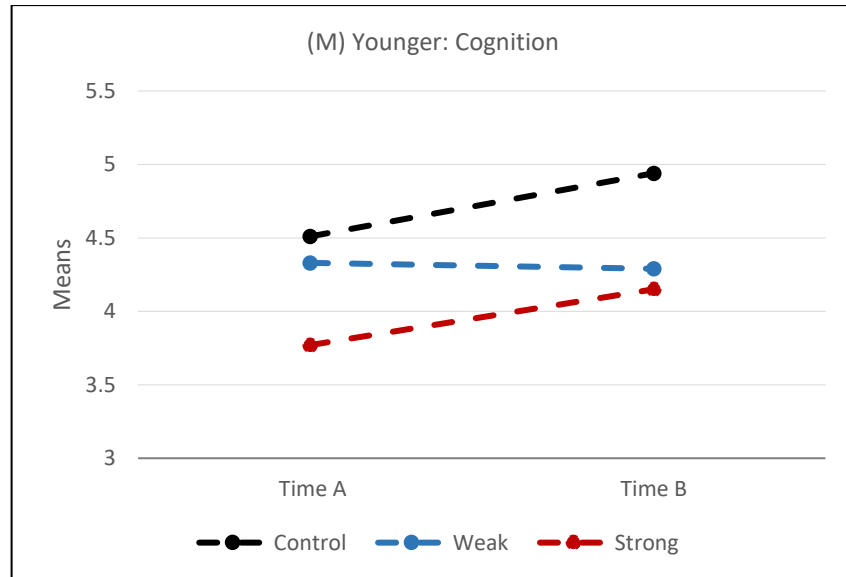


Figure 7.9.2-B1 (SH5)

The effects of the three conditions on maintenance of cognition.

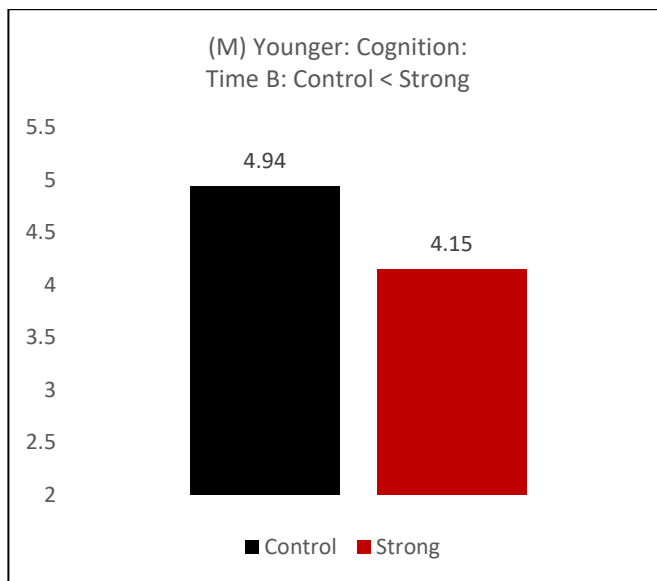


Figure 7.9.2-B2 (SH5)

Significant difference found between no inoculation control and strong inoculation for younger participants cognitive responses at Time B.

7.9.2-B2 SH5: Statistical evidence

The only significant effect found when measuring cognition for younger and older participants was the difference between the control and strong argument at Time B for the younger participant cluster. For younger participants, compared to the strong inoculation argument, the control was significantly more effective in maintaining cognitive appeal ($t = 2.03$, $p = .04$) (Figure 7.9.2-B2). This finding does not support Subsidiary Hypothesis 5 ‘*Cognitive responses generated by weak and strong inoculation treatments will be more stable over time for younger participants compared to older participants*’. The lack of any other significant effects shows a contradiction to the hypothesis. It is in fact older participants for whom inoculation maintains higher stability in cognitive response, not younger participants as originally thought.

(M) Younger: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	24	4.51	-.055	n/s
Weak	17	4.33		
Control	24	4.51	.788	n/s
Strong	22	3.77		
Weak	17	4.33	.385	n/s
Strong	22	3.77		

(M) Younger: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	24	4.94	1.802	$p = .079$
Weak	17	4.29		
Control	24	4.94	2.031	$p = .048$
Strong	22	4.15		
Weak	17	4.29	.384	n/s
Strong	22	4.15		

(M) Older: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	28	4.19	-.316	n/s
Weak	30	4.3		
Control	28	4.19	-1.476	n/s
Strong	38	4.66		
Weak	30	4.3	-1.221	n/s
Strong	38	4.66		

(M) Older: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	28	4.39	-.238	n/s
Weak	30	4.08		
Control	28	4.39	-1.293	n/s
Strong	38	4.46		
Weak	30	4.08	-.565	n/s
Strong	38	4.46		

Table 7.9.2-B1 (SH5)

Non-significant statistical data between groups for younger and older participants from Time A to Time B.

(M) Younger: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.51	4.94	-1.056	n/s
Weak	4.33	4.29	.108	n/s
Strong	3.77	4.15	0	n/s

(M) Older: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.19	4.39	.565	n/s
Weak	4.3	4.08	.678	n/s
Strong	4.66	4.46	0.72	n/s

Table 7.9.2- B2 (SH5)

Non-significant findings listed for retention of cognition over time for younger and older participants.

7.9.2-C1 SH6: Emotions will drop more swiftly for older participants than for younger participants, both for the weak and strong inoculation treatments.

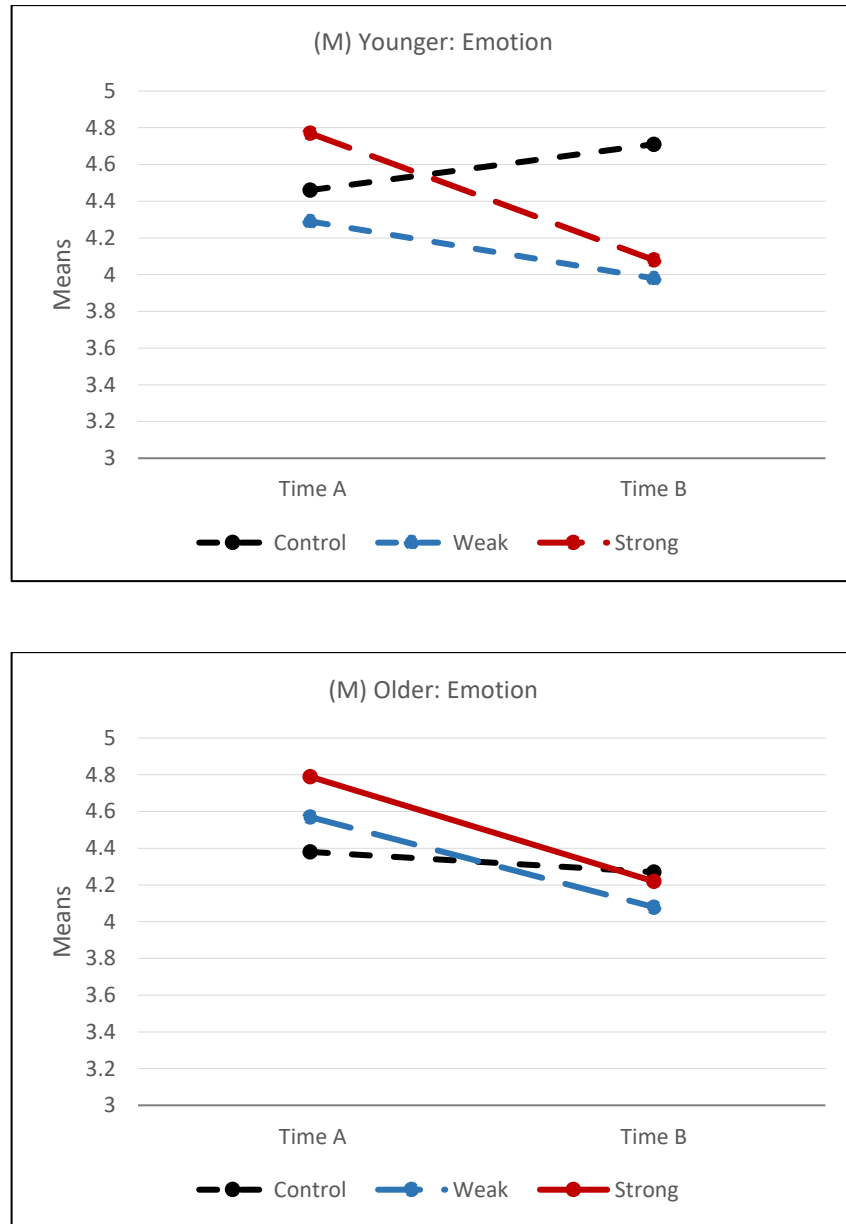


Figure 7.9.2-C1 (SH6)

Three condition (control, weak and strong) inoculation effects on emotion over time, split by younger (under 40), and older (40+) participants.

7.9.2-C2 SH6: Statistical evidence

In running ANOVA with interactions, no significant interactions were found between condition groups or within groups over time when looking only at younger participants (under 40) emotional response to the various inoculation treatments (Condition $F = 1.36$, $p = .25$; Time $F = 1.36$, $p = .24$; Condition*Time $F = 1.79$, $p = .17$). When running various t-tests, again no significant differences were found. The results of these tests are shown below in Table 7.9.2-C1 and 7.9.2-C2.

(M) Younger: Time A: Emotion					(M) Younger: Time B: Emotion				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	24	4.46	.447	n/s	Control	24	4.71	1.856	$p = .071$
Weak	17	4.29			Weak	17	3.98		
Control	24	4.46	-.821	n/s	Control	24	4.71	1.567	n/s
Strong	22	4.77			Strong	22	4.08		
Weak	17	4.29	-1.534	n/s	Weak	17	3.98	-.278	n/s
Strong	22	4.77			Strong	22	4.08		

Table 7.9.2-C1 (SH6)

Observable differences between groups at Time A and Time B (Younger participants only)

(M) Younger: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.46	4.71	-.606	n/s
Weak	4.29	3.98	1.209	n/s
Strong	4.77	4.08	1.895	$p = .065$

Table 7.9.2-C2 (SH6)

Differences within groups between Time A and Time B (Younger participants only)

An interaction over time was found for the effect of the various inoculation treatments when looking at emotional responses with ANOVA testing for older participants only (persons over the age of 40) (Condition $F = .88$, $p = .41$; Time $F = 8.23$, $p = .005$; Condition*Time $F = 1.09$, $p = .34$). This effect is illustrated in Figure 7.9.2-C1. Though no between-group significant differences are found when conducting further testing, within groups the emotional response of those in the strong argument group drops significantly ($t = 3.09$, $p = .003$).

Interestingly, the weak argument group also exhibits a downward pattern though this was not found to reach a level of significance ($t = 1.92$, $p = .06$). As when emotion drops over time for both the weak argument and strong argument the Subsidiary Hypothesis 6 (SH6) '*Emotions will drop more swiftly for older participants than for younger participants, both for the weak and strong inoculation treatments*' is supported. The results for emotional responses by the older participants are displayed below in Tables 7.9.2-C1 and 7.9.2-C2.

(M) Older: Time A: Emotion					(M) Older: Time B: Emotion				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	28	4.38	-.672	n/s	Control	28	4.27	.773	n/s
Weak	30	4.57			Weak	30	4.08		
Control	28	4.38	-1.705	n/s	Control	28	4.27	.260	n/s
Strong	38	4.79			Strong	38	4.22		
Weak	30	4.57	-.933	n/s	Weak	30	4.08	-.749	n/s
Strong	38	4.79			Strong	38	4.22		

Table 7.9.2-C1 (SH6)

Differences between groups at Time A and Time B (Older participants only)

(M) Older: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.38	4.27	.388	n/s
Weak	4.57	4.08	1.920	$p = .060$
Strong	4.79	4.22	3.092	$p = .003$

Table 7.9.2-C2 (SH6)

Older participant within group maintenance of emotions over time.

7.9.3 RELATIONSHIP BASED SUBSIDIARY HYPOTHESIS

7.9.3-A1 SH7: The effects of inoculation on maintenance of purchase intent will be intensified for people in relationships.

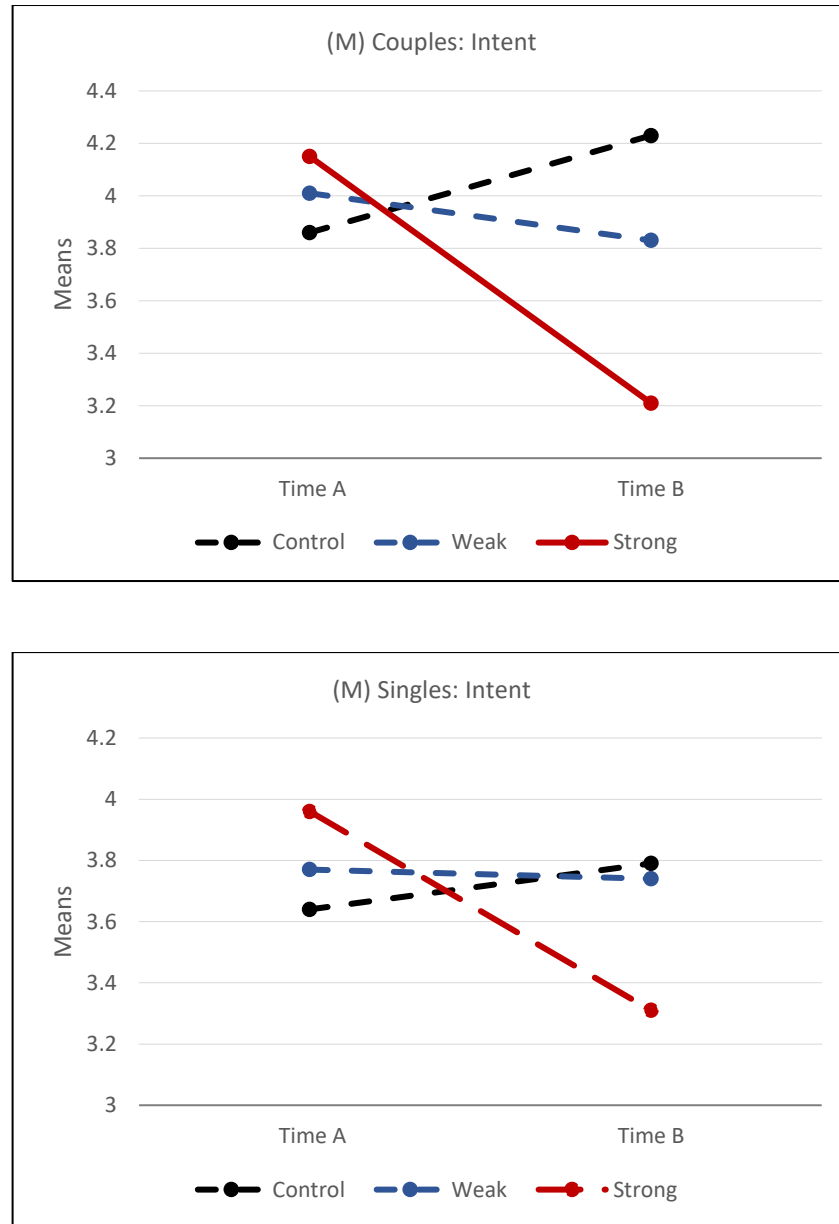


Figure 7.9.3-A1 (SH7)

Effectiveness of three treatments over time showing purchase intent as found in participants that were in relationships contrasted with single participants

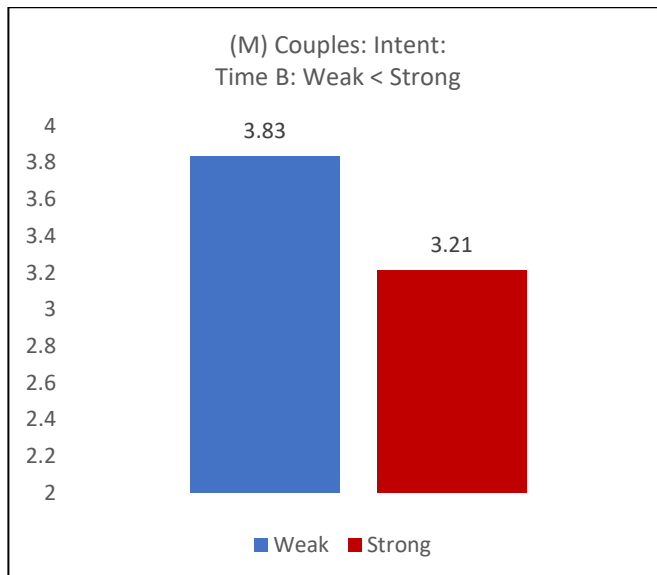
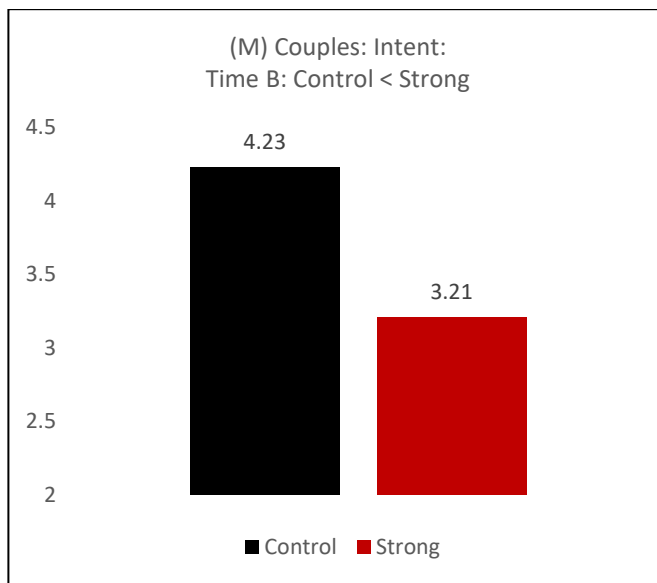


Figure 7.9.3-A2 (SH7)

Statistical differences found at Time B between no inoculation (control) and strong argument as well as weak argument and strong argument inoculation (Coupled participants only)

7.9.3-A2 SH7: Statistical evidence

In looking at ANOVA interactions, I found a significant interaction in Condition*Time for participants that were in a relationship (Condition $F = 1.32$, $p = .27$; Time $F = 1.65$, $p = .2$; Condition*Time $F = 4.09$, $p = .02$) when measuring purchase intent. Furthermore, several significant differences were found when conducting t-tests between several different factors. While no significant differences emerged at Time A, at Time B, there was a significant difference between the control (no inoculation) group and the strong inoculation argument group in terms of purchase intent ($t = 3.32$, $p = .002$). A significant difference in purchase intent was also found between the weak inoculation argument group and the strong inoculation argument group at Time B ($t = 2.28$, $p = .027$). Within group significance between Time A and Time B was also uncovered for participants in a relationship that belonged to the strong argument group ($t = 3.74$, $p = <.001$) (Figure 7.9.3-A1, Table 7.9.3-A2).

Interestingly, when only testing the data from single participants, there were no significant differences found between the groups at either the initial testing or the re-test time. There were also no significant differences within the groups over the two testing periods. The findings for purchase intent of participants separated by relationship status (singles and couples), are detailed in Table 7.9.3-A1 and 7.9.3-A2.

While the strong argument trends negatively for both couples and singles, the trend is only significant for coupled participants ($t = 3.74$, $p = <.001$). As a result, the control ($t = 3.32$, $p = .002$) and the weak argument ($t = 2.28$, $p = .027$) are both significantly more effective compared to the strong argument at Time B (Figure 7.9.3-A2, Table 7.9.3-A1). These findings support SH7: *'The effects of inoculation on maintenance of purchase intent will be intensified for people in relationships'*.

(M) Couples: Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	30	3.86	-.421	n/s
Weak	28	4.01		
Control	30	3.86	-.837	n/s
Strong	32	4.15		
Weak	28	4.01	-.429	n/s
Strong	32	4.15		

(M) Couples: Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	30	4.23	1.071	n/s
Weak	28	3.83		
Control	30	4.23	3.32	p = .002
Strong	32	3.21		
Weak	28	3.83	2.275	p = .027
Strong	32	3.21		

(M) Singles: Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	22	3.64	-.335	n/s
Weak	19	3.77		
Control	22	3.64	-.758	n/s
Strong	28	3.96		
Weak	22	3.77	-.482	n/s
Strong	28	3.96		

(M) Singles: Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	22	3.79	.120	n/s
Weak	19	3.74		
Control	22	3.79	1.370	n/s
Strong	28	3.31		
Weak	22	3.74	1.372	n/s
Strong	28	3.31		

Table 7.9.3-A1 (SH7)

Between group statistically observable differences for purchase intent, tested at Time A and Time B, separated by relationship status.

(M) Couples: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.86	4.23	-.949	n/s
Weak	4.01	3.83	.525	n/s
Strong	4.15	3.21	3.739	$p < .001$

(M) Singles: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.64	3.79	-.335	n/s
Weak	3.77	3.74	.100	n/s
Strong	3.96	3.31	1.916	$p = .061$

Table 7.9.3-A2 (SH7)

Between group mean purchase intent of participants in relationships, as tested at Time A and Time B.

7.9.3-B1 SH8: Emotions and cognitions will fade more for single participants than for participants in relationships.

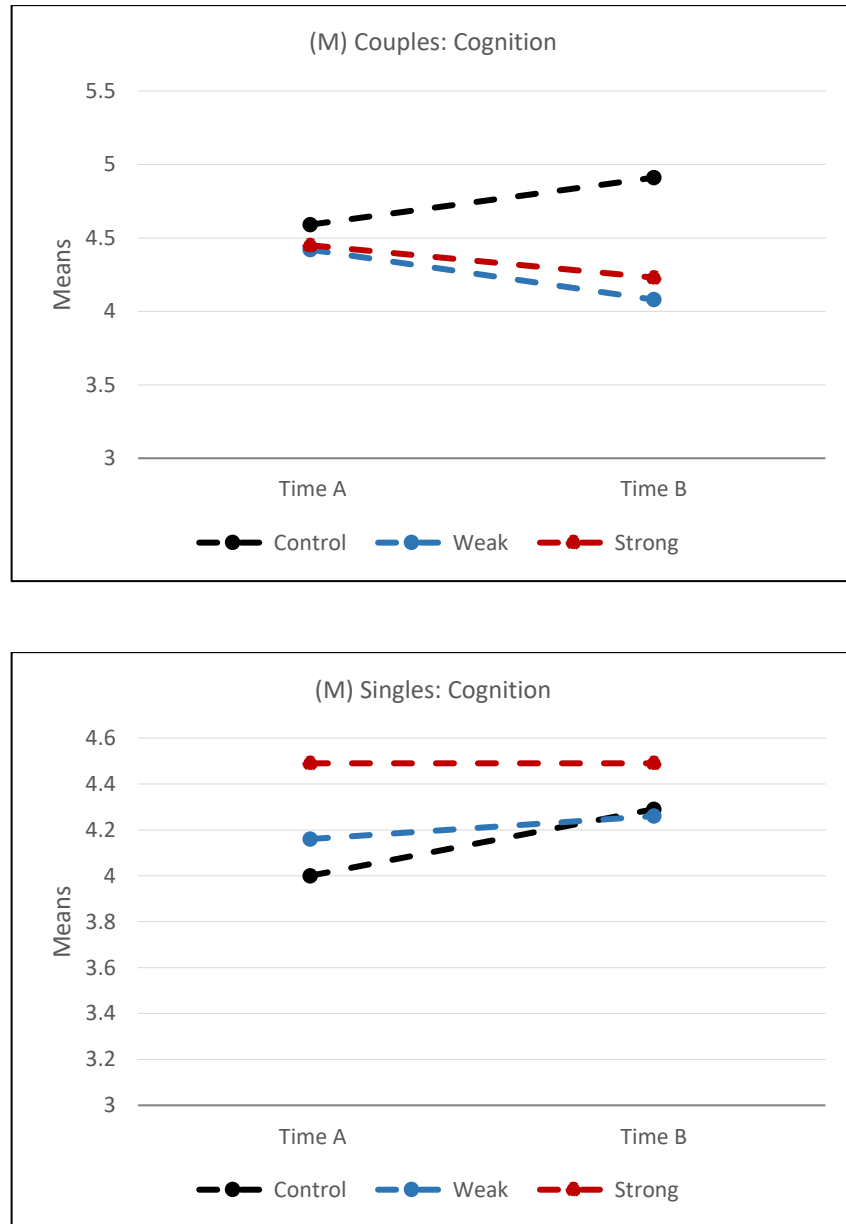


Figure 7.9.3-B1 (SH8)

Observation of mean scores measuring cognition, separating single participants and participants in a relationship.

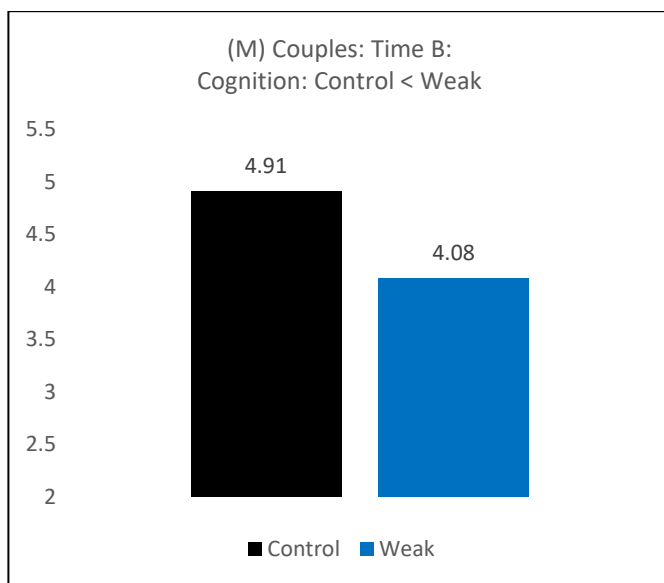
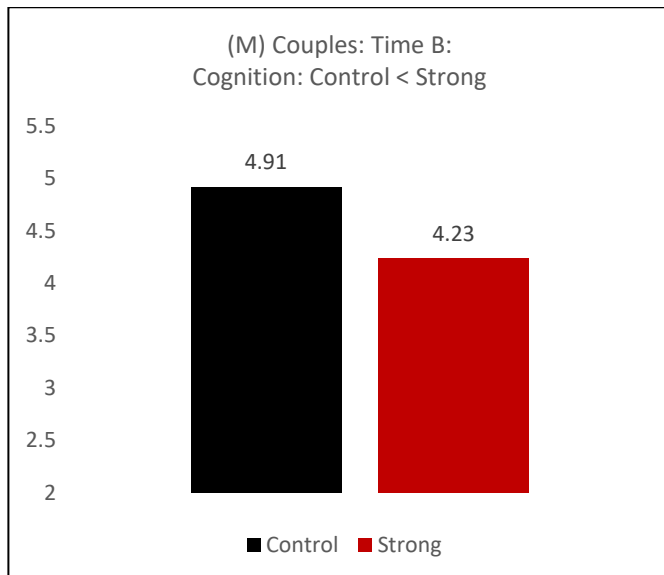


Figure 7.9.3-B2 (SH8)

*Statistical differences in cognition of
coupled participants, between groups
at Time B.*

*of coupled participants, between
groups at Time B.*



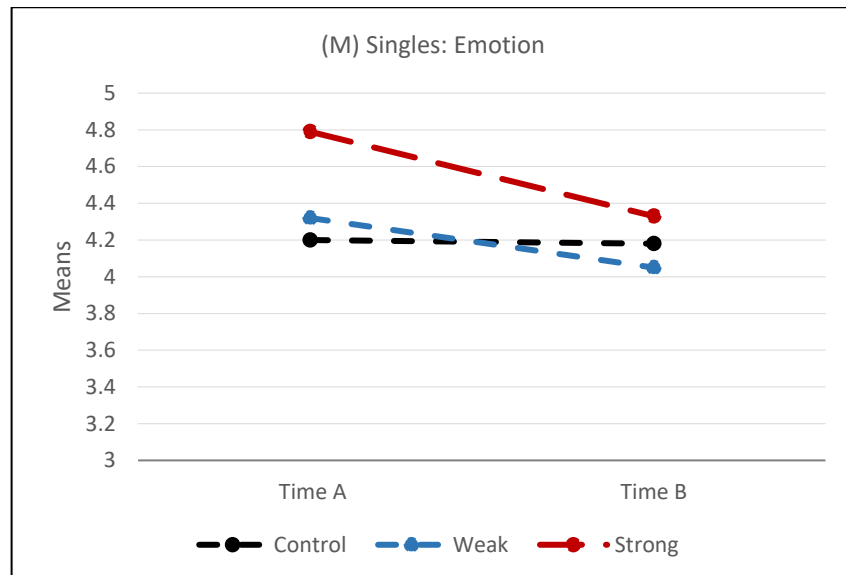


Figure 7.9.3-B3 (SH8)

Observation for mean scores of emotional responses, separating single participants and participants in a relationship.

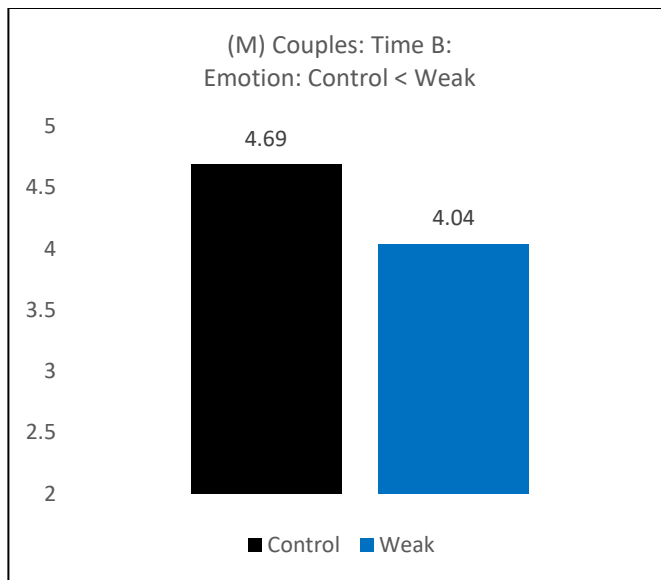
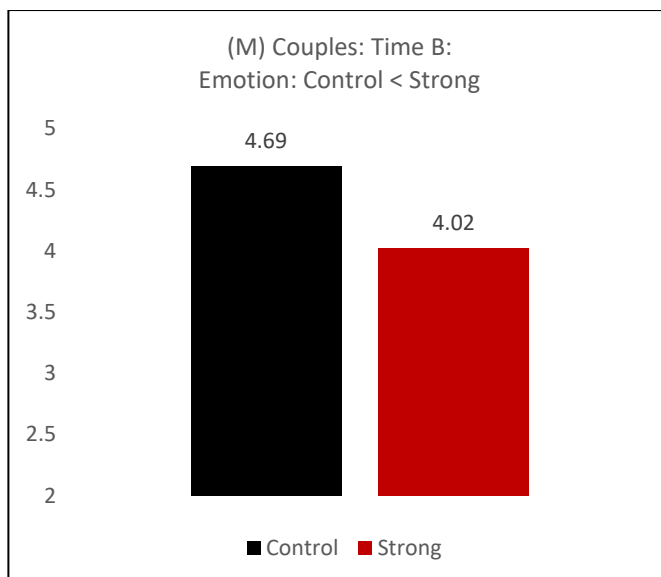


Figure 7.9.3-B4 (SH8)

Statistical differences in reported emotion of coupled participants, between groups at Time B.



7.9.3-B2 SH8: Statistical evidence

No statistical evidence was found for any differences in cognition between the three treatment (condition) groups of single participants at either Time A or Time B. Likewise, no significant increase or decay would be found within these groups between Time A and Time B. ANOVA with interaction measures did not produce any significant effects in the coupled participants cognition interaction measures. However, further t-tests were warranted as the condition interaction did indicate an approach toward a level of significance (Condition $F = 2.63$, $p = .08$; Time $F = .18$, $p = .67$; Condition*Time $F = 1.16$, $p = .317$). In further t-test analysis, participants in relationships were shown to have experienced multiple significant differences at Time B, with cognition levels being significantly lower than the control, both for the weak argument group ($t = 2.51$, $p = .015$) and the strong argument group ($t = 2.3$, $p = .025$) at the time of retesting (Time B). These findings are illustrated in Figure 7.9.3-B2 and presented in Table 7.9.3-B1

When analyzing the data and testing for the response of emotion, firstly, including only single participants, no significant effects were found. In conducting the same analysis measuring emotional responses of coupled participants to the three conditions (no inoculation control, weak inoculation and strong inoculation arguments), beginning with an interactive ANOVA, a significant interaction was found for emotion showing that there was indeed an interaction between condition treatments and time (Condition $F = 1.68$, $p = .19$; Time $F = 7.18$, $p = .008$; Condition*Time $F = 3.21$, $p = .04$). In further analysis using t-test measures, participants in a relationship were found to have expressed significantly less emotion at Time B when comparing the control (no inoculation treatment) with the weak argument ($t = 2.71$, $p = .009$) and the strong argument ($t = 2.66$, $p = .010$). These effects are depicted in Figure 7.9.3-B4 and presented in Table 7.9.3-B1.

(M) Singles: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	22	4	-.359	n/s
Weak	19	4.16		
Control	22	4	-1.214	n/s
Strong	28	4.49		
Weak	22	4.16	-.825	n/s
Strong	28	4.49		

(M)Singles: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	22	4.29	.067	n/s
Weak	19	4.26		
Control	22	4.29	-.515	n/s
Strong	28	4.49		
Weak	22	4.26	-.614	n/s
Strong	28	4.49		

(M) Couples: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	30	4.59	.506	n/s
Weak	28	4.42		
Control	30	4.59	.371	n/s
Strong	32	4.45		
Weak	28	4.42	-.126	n/s
Strong	32	4.45		

(M) Couples: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	30	4.91	2.511	$p = .015$
Weak	28	4.08		
Control	30	4.91	2.304	$p = .025$
Strong	32	4.23		
Weak	28	4.08	-.479	n/s
Strong	32	4.23		

Table 7.9.3-B1 (SH8)

Between group statistically observable differences in mean scores of participants cognition tested at Time A and Time B, separated by relationship status.

For the participants in relationships, within the weak argument and strong argument groups between Time A and Time B, a significant decrease in emotion was also found. The weak argument group ($t = 2.22$, $p = .03$) and the strong argument group ($t = 3.05$, $p = .003$) interestingly, came to a near final point ($M_{\text{weak}} = 4.04$, $M_{\text{strong}} = 4.02$) at Time B. These findings are depicted in Figure 7.9.3-B3 and logged in Table 7.9.3-B2. The findings of the experiments do not support Subsidiary Hypothesis 8 (SH8): ‘*Emotions and cognitions will fade more for single participants than for participants in relationships*’. Contrary to the hypothesis, emotions and cognitions proved to fade more for coupled participants.

(M) Couples: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.58	4.69	-.406	n/s
Weak	4.57	4.04	2.219	$p = .031$
Strong	4.79	4.02	3.047	$p = .003$

(M) Singles: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.2	4.18	.036	n/s
Weak	4.32	4.05	.876	n/s
Strong	4.79	4.33	1.811	$p = .076$

Table 7.9.3-B2 (SH8)

Within group statistically observable differences in mean scores of participants emotion tested at Time A and Time B, separated by relationship status.

7.9.4 EDUCATION BASED SUBSIDIARY HYPOTHESIS

7.9.4-A1 SH9: Inoculation treatments will be less effective in maintaining purchase intent for higher educated participants compared to lower educated participants.

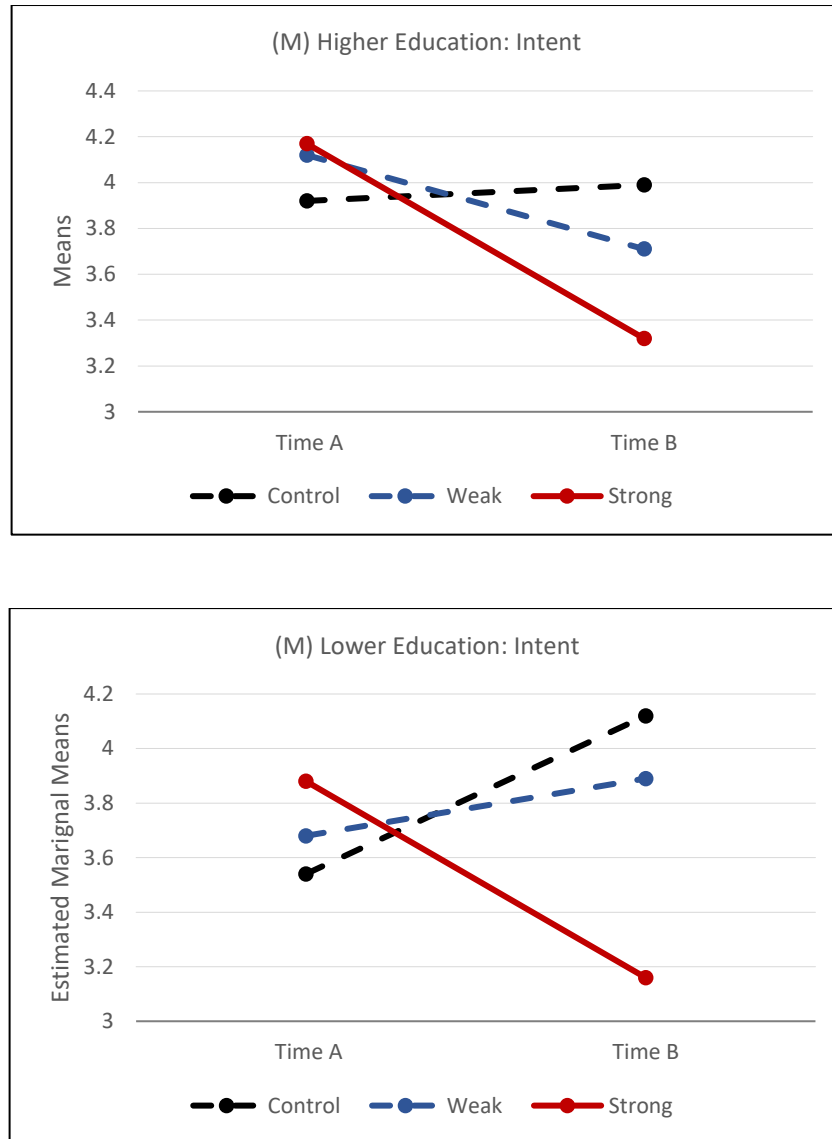


Figure 7.9.4-A1 (SH9)

Three conditions showing the different effectiveness of inoculation, maintaining purchase intent over time, presenting participants grouped by education level.

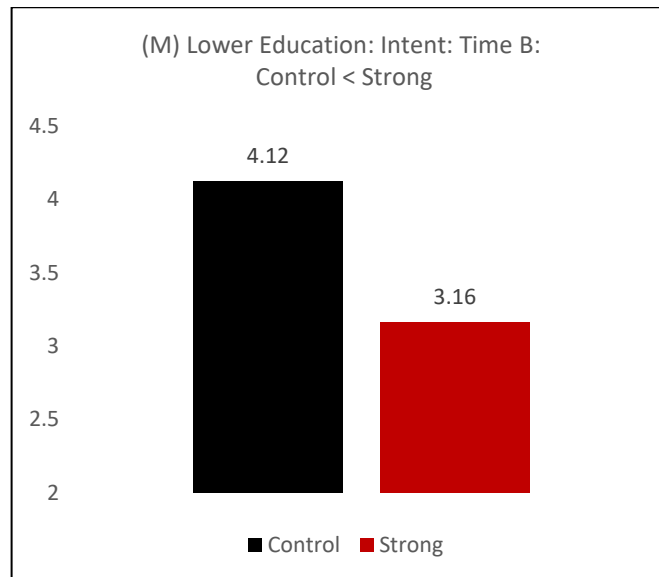
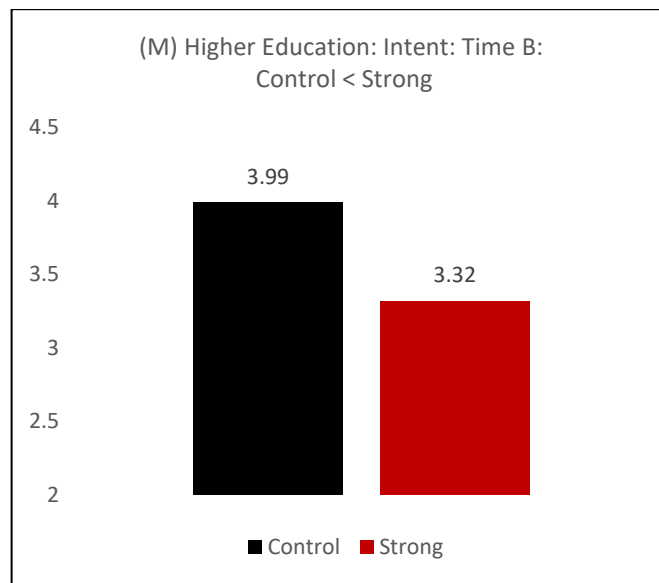


Figure 7.9.4-A2 (SH9)

Significant differences found in purchase intent at Time B between the control (no inoculation) and strong inoculation argument groups, showing the same effect for both participants with higher and lower education.

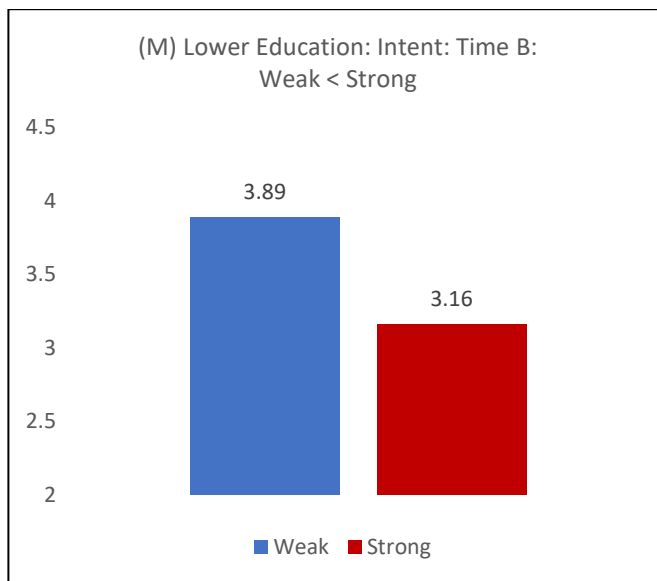


Figure 7.9.4-A3 (SH9)

Significant difference identified in purchase intent of lower education participants when comparing the weak argument inoculation group with the strong argument inoculation group at Time B.

7.9.4-A2 SH9: Statistical evidence

The data shows the pattern between the strong argument and the control (no inoculation) to be the same for participants with lower education and those with higher education. This effect is depicted in Figure 7.9.4-A1 and 7.9.4-A2. First, looking at the higher education group, when conducting ANOVA testing to seek interactions, a significant effect was found for the Time parameter (Condition $F = .45$, $p = .64$; Time $F = 3.81$, $p = .05$; Condition*Time $F = 1.87$, $p = .16$). Further analysis using t-tests revealed the significant difference at Time B between the control group and the strong argument group ($t = 2.05$, $p = .045$). This between group difference at Time B may mostly be attributed to the significant decline in the effectiveness of the strong argument from Time A to Time B ($t = 3.14$, $p = .002$). These findings are detailed in Table 7.9.4-A1 and 7.9.4-A2.

(M) Higher Education: Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	30	3.92	-.514	n/s
Weak	25	4.12		
Control	30	3.92	-.682	n/s
Strong	37	4.17		
Weak	25	4.12	-.148	n/s
Strong	37	4.17		

(M) Higher Education: Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	30	3.99	.664	n/s
Weak	25	3.71		
Control	30	3.99	2.048	$p = .045$
Strong	37	3.32		
Weak	25	3.71	1.415	n/s
Strong	37	3.32		

(M) Lower Education: Time A: Intent				
Condition	N	Mean	t-value	Sig.
Control	22	3.54	-.357	n/s
Weak	22	3.68		
Control	22	3.54	-.848	n/s
Strong	23	3.88		
Weak	22	3.68	-.593	n/s
Strong	23	3.88		

(M) Lower Education: Time B: Intent				
Condition	N	Mean	t-value	Sig.
Control	22	4.12	.650	n/s
Weak	22	3.89		
Control	22	4.12	3.116	$p = .003$
Strong	23	3.16		
Weak	22	3.89	2.386	$p = .021$
Strong	23	3.16		

Table 7.9.4-A1 (SH9)

Between group differences in retention of intent (Time A vs Time B) shown for participants split by level of education (higher education and lower education).

(M) Higher Education: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.92	3.99	-.155	n/s
Weak	4.12	3.71	1.158	n/s
Strong	4.17	3.32	3.139	$p = .002$

(M) Lower Education: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.54	4.12	-1.454	n/s
Weak	3.68	3.89	-.637	n/s
Strong	3.88	3.16	2.288	$p = .027$

Table 7.9.4-A2 (SH9)

Within group differences in retention of intent between Time A and Time B for participants split by education level.

An interaction for condition over time was found when testing the lower education participants purchase intent retention through ANOVA analysis (Condition $F = .94$, $p = .39$; Time $F = .011$, $p = .92$; Condition*Time $F = 3.73$, $p = .027$). Through further analysis, as with the higher education participants, t-testing revealed lower educated participants experienced a significant difference in maintenance of purchase intent between the no inoculation control group and the strong argument group at Time B ($t = 3.12$, $p = .003$) as illustrated in Figure 7.9.4-A2. This effect is again mostly caused by the strong argument inoculation losing its effectiveness between Time A and Time B ($t = 3.116$, $p = .003$), shown in Diagram 7.9.4-A1 and Table 7.9.4-A2.

Uniquely however, as presented in Figure 7.9.4-A3 and Table 7.9.4-A1, the participants with lower education also experienced a significant difference in the effectiveness of maintaining purchase intent between the weak argument and the strong argument at Time B ($t = 2.39$, $p = .02$). The effect is also largely attributed to the decline of the strong argument between Time A and Time B. According to the data, Subsidiary Hypothesis SH8: *'Inoculation treatments will be less effective in maintaining the purchase intent for high educated participants compared to lower educated participants'* is partially supported. While there was no difference between the education groups in the contrast of the no inoculation control and strong argument, the weak argument was also significantly more effective long term for the participants with lower education.

7.9.4-B1 SH10: Cognitive effects of inoculation will be more pronounced in lower educated participants

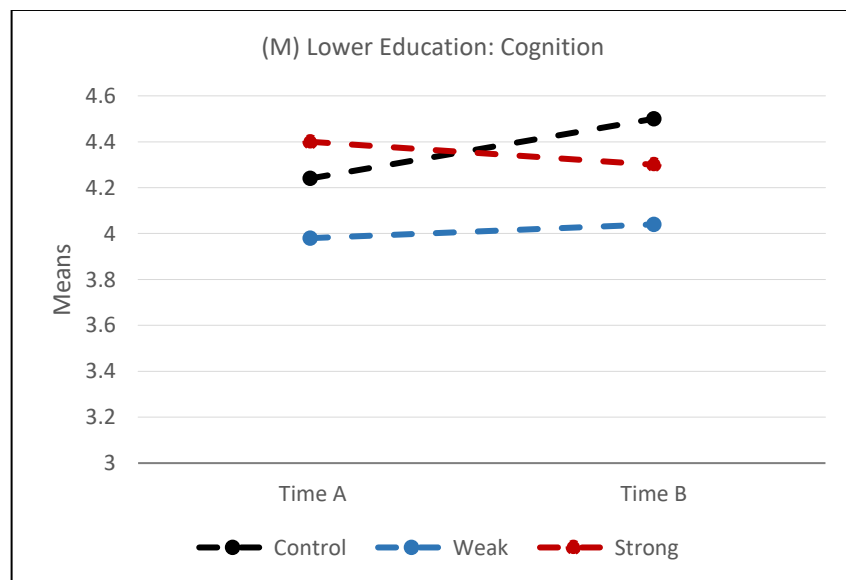
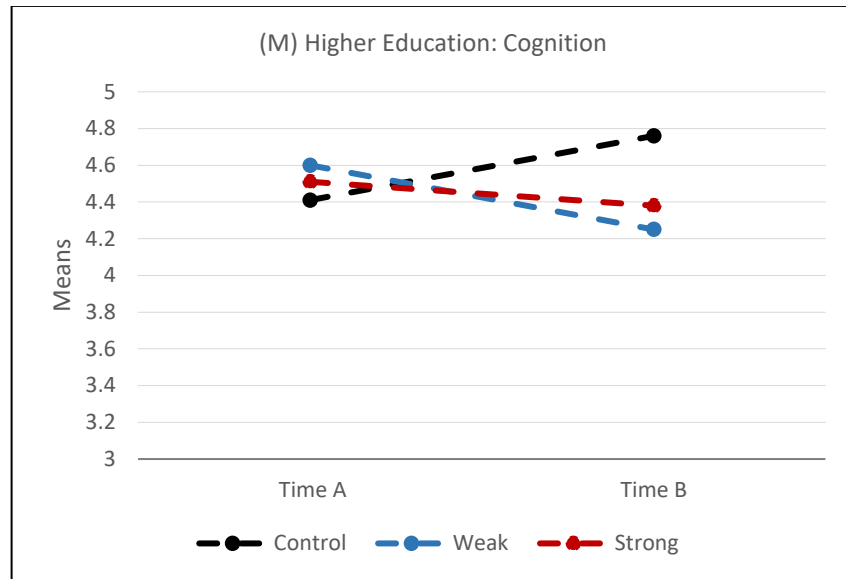


Figure 7.9.4-B1 (SH10)

Patterns identified in retention of cognition between Time A and Time B between various treatment groups and presented by level of education.

7.9.4-B2 SH10: Statistical evidence

The Subsidiary Hypothesis (SH10) '*Cognitive effects of inoculation will be more pronounced in lower educated participants*' is not supported. When examining the effectiveness of attitude inoculation maintaining cognition for higher or lower educated participants, no significant findings were made.

(M) Higher Education: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	30	4.41	-.480	n/s
Weak	25	4.6		
Control	30	4.41	-.279	n/s
Strong	37	4.51		
Weak	25	4.6	.254	n/s
Strong	37	4.51		

(M) Higher Education: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	30	4.76	1.544	n/s
Weak	25	4.25		
Control	30	4.76	1.227	n/s
Strong	37	4.38		
Weak	25	4.25	-1.698	n/s
Strong	37	4.38		

(M) Lower Education: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	22	4.24	.721	n/s
Weak	22	3.98		
Control	22	4.24	-.429	n/s
Strong	23	4.4		
Weak	22	3.98	-1.111	n/s
Strong	23	4.4		

(M) Lower Education: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	22	4.5	1.168	n/s
Weak	22	4.04		
Control	22	4.5	.500	n/s
Strong	23	4.3		
Weak	22	4.04	-.626	n/s
Strong	23	4.3		

Table 7.9.4-B1 (SH10)

Between group testing of cognition retention (Time A vs Time B) shown for participants split by level of education (higher education and lower education).

(M) Higher Education: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.41	4.76	-.883	n/s
Weak	4.6	4.25	1.132	n/s
Strong	4.51	4.38	0.462	n/s

(M) Lower Education: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.24	4.5	-.712	n/s
Weak	3.98	4.04	-.157	n/s
Strong	4.4	4.3	0.25	n/s

Table 7.9.4-B2 (SH10)

Within group results displaying cognition retention within groups between Time A and Time B, with participants split by level of education.

7.9.4-C1 SH11: The emotional response to inoculation treatments will fade more severely for higher educated persons than for lower educated persons.

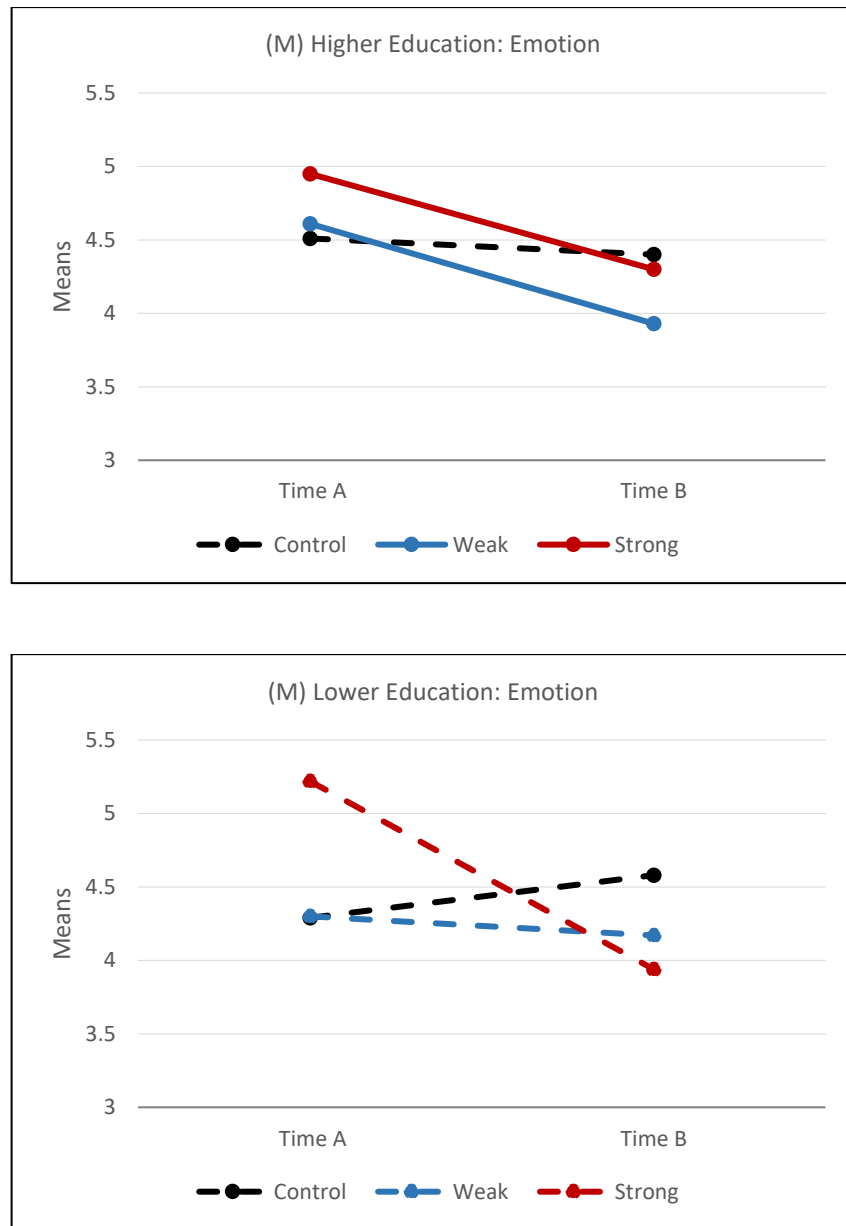


Figure 7.9.4-C1 (SH11)

Three conditions showing the different effectiveness of inoculation, maintaining emotions over time, presenting participants grouped by education level.

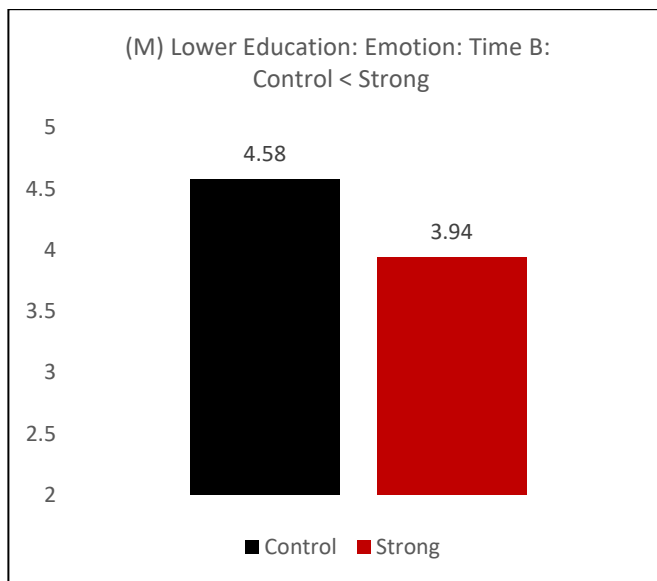


Figure 7.9.4-C2 (SH11)

A significant difference found between no inoculation control and a strong inoculation argument at Time B for lower educated participants.

7.9.4-C2 SH11: Statistical evidence

ANOVA testing for interactions revealed a significant effect of Time when measuring the retention of emotion with participants that had a higher education (Condition $F = 1.75$, $p = .18$; Time $F = 9.39$, $p = .003$; Condition*Time $F = 1.39$, $p = .25$) across the multiple treatment groups (no inoculation control, weak inoculation argument and strong inoculation argument). Despite the significant drop in the maintenance of emotion from both the weak argument ($t = 2.61$, $p = .012$) and the strong argument ($t = 3.35$, $p < .001$) for the higher educated participant cluster (as shown in Figure 7.9.4-C1 and Table 7.9.4-C2), no significant between group differences were found at Time B.

Likewise, no significant interactions would be found for the lower educated participants through ANOVA testing (Condition $F = 1.08$, $p = .34$; Time $F = .11$, $p = .75$; Condition*Time $F = .22$, $p = .8$). As illustrated in Figure 7.9.4-C1, the lower educated participant cluster does not hold any within group significant changes. Despite this, the counter directional trends resulted in the no inoculation control narrowly reaching significantly more maintenance of emotion than the strong inoculation argument at Time B

($t = 2$, $p = .05$) (Figure 7.9.4-C2). These findings support hypothesis SH11: '*The emotional response to inoculation treatments will fade more severely for higher educated persons than for lower educated persons*'. The data further unveils, for the lower education group, the strong argument is detrimental long-term, while the weak argument has no long-term effect.

(M) Higher Education: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	30	4.51	-.332	n/s
Weak	25	4.61		
Control	30	4.51	-1.673	n/s
Strong	37	4.95		
Weak	25	4.61	-1.486	n/s
Strong	37	4.95		

(M) Higher Education: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	30	4.4	1.424	n/s
Weak	25	3.93		
Control	30	4.4	.345	n/s
Strong	37	4.3		
Weak	25	3.93	-1.698	n/s
Strong	37	4.3		

(M) Lower Education Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	22	4.29	-.048	n/s
Weak	22	4.3		
Control	22	4.29	-.682	n/s
Strong	23	5.22		
Weak	22	4.3	-.652	n/s
Strong	23	5.22		

(M) Lower Education: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	22	4.58	.093	n/s
Weak	22	4.17		
Control	22	4.58	2.003	$p = .052$
Strong	23	3.94		
Weak	22	4.17	.822	n/s
Strong	23	3.94		

Table 7.9.4-C1 (SH11)

Between group differences in retention of emotions (Time A vs Time B) shown for participants split by level of education (higher education and lower education).

(M) Higher Education: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.51	4.4	.319	n/s
Weak	4.61	3.93	2.614	$p = .012$
Strong	4.95	4.3	3.351	$p = <.001$

(M) Lower Education: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.29	4.58	-.896	n/s
Weak	4.3	4.17	.508	n/s
Strong	5.22	3.94	1.717	n/s

Table 7.9.4-C2 (SH11)

Within group retention of emotions from Time A to Time B for participants with a higher-level education presented by treatment group.

7.9.5 INCOME BASED SUBSIDIARY HYPOTHESIS

7.9.5-A1 SH12: Inoculation treatments will be less effective in maintaining purchase intent for higher income participants compared to lower income participants.

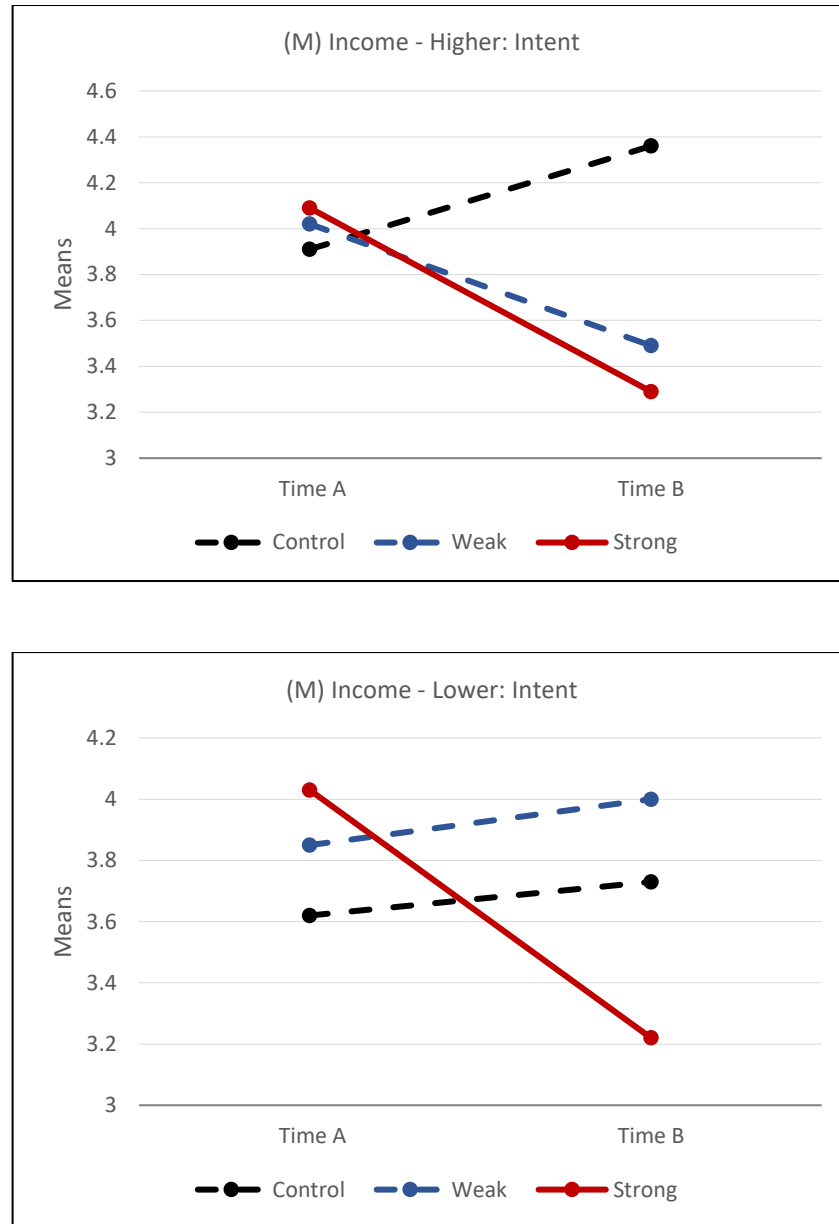


Figure 7.9.5-A1 (SH12)

Three conditions showing the different effectiveness of various inoculation maintaining purchase intent over time. Data presented by level of income.

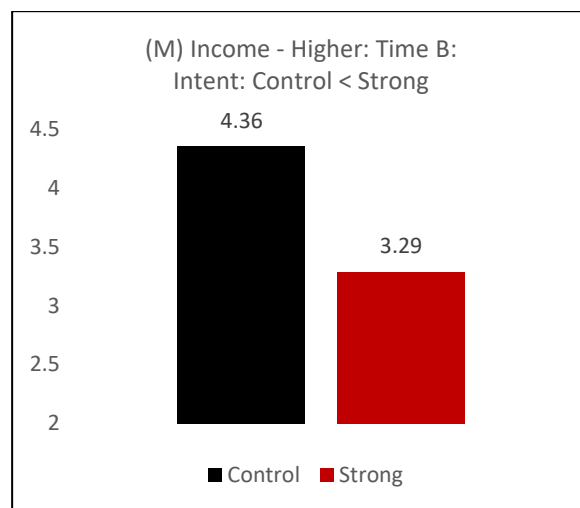
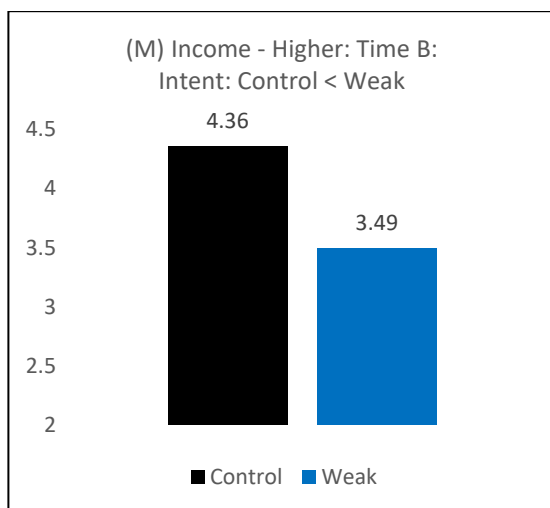


Figure 7.9.5-A2 (SH12)

Significant differences found for higher income participants when comparing no inoculation control and weak inoculation as well as no inoculation control and strong inoculation at Time B.

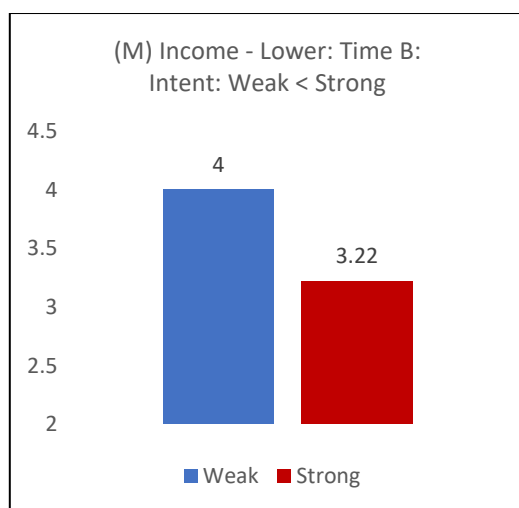


Figure 7.9.5-A3 (SH12)

Significant differences found for lower income participants when comparing weak inoculation with strong inoculation at Time B.

7.9.5-A2 SH12: Statistical evidence

In filtering participants into two categories (Higher income and Lower income) I sought to examine whether the level of income would reflect on the working of inoculation. Based on the statistical analysis conducted, the Subsidiary Hypothesis 12 (SH12) '*Inoculation treatments will be less effective in maintaining purchase intent for higher income participants compared to lower income participants*', was partially supported.

Conducting ANOVA testing presented a significant interaction between the conditions and time for the higher income participants (Condition $F = 1.68$, $p = .19$; Time $F = 1.68$, $p = .2$; Condition*Time $F = 3.13$, $p = .04$). With further t-test analysis, the higher income group was found to have had a significant decrease over time in the effectiveness of the strong argument on maintenance of purchase intent ($t = 2.614$, $p = .011$) as shown in Figure 7.9.5-A1 and Table 7.9.5-A2). Though not significant in itself, the increase in the effectiveness of the no argument control from Time A to Time B, paired with the downward trend experienced by both the weak argument group and the strong argument group also resulted in the no argument control being both significantly more effective than the weak argument group ($t = 2.01$, $p = .05$) and the strong argument group ($t = 3.14$, $p = .003$) at Time B. This effect is illustrated in Figure 7.9.5-A2 and Table 7.9.5-A1.

(M) Income - Higher: Time A: Intent					(M) Income - Higher: Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	26	3.91	-.238	n/s	Control	26	4.36	2.012	$p = .051$
Weak	19	4.02			Weak	19	3.49		
Control	26	3.91	-.456	n/s	Control	26	4.36	3.142	$p = .003$
Strong	30	4.09			Strong	30	3.29		
Weak	19	4.02	-.175	n/s	Weak	19	3.49	.650	n/s
Strong	30	4.09			Strong	30	3.29		

Table 7.9.5-A1 (SH12)

Between group differences in retention of intent (Time A vs Time B) shown for higher income participants.

(M) Income - Higher: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.91	4.36	-1.040	n/s
Weak	4.02	3.49	1.230	n/s
Strong	4.09	3.29	2.614	$p = .011$

Table 7.9.5-A2 (SH12)

Within group differences in retention of intent for higher income participants between Time A and Time B.

Again, using the same ANOVA technique in testing for interactions, this time applied to lower income participants, a significant effect was found between treatment conditions and time (Condition $F = .91$, $p = .39$; Time $F = .91$, $p = .34$; Condition*Time $F = 2.89$, $p = .05$). In following this up with t-tests, I found a non-significant, though positive trend for the no inoculation control and the weak argument, as well as a very sharp

significant decline in the effectiveness of the strong argument over time ($t = 2.87$, $p = .006$). These effects can be seen in Figure 7.9.5-A1 and are detailed in Table 7.9.5-A4. In comparing groups, no significant differences were found at Time A. With the measures at Time B however, I found the weak argument inoculation had been significantly more effective in maintaining purchase intent when compared to the strong argument inoculation ($t = 2.88$, $p = .006$). This occurrence is depicted in Figure 7.9.5-A3 and detailed in Table 7.9.5-A3.

(M) Income - Lower: Time A: Intent					(M) Income - Lower: Time B: Intent				
Condition	N	Mean	t-value	Sig.	Condition	N	Mean	t-value	Sig.
Control	26	3.62	-.676	n/s	Control	26	3.73	-.745	n/s
Weak	28	3.85			Weak	28	4		
Control	26	3.62	-1.107	n/s	Control	26	3.73	1.659	n/s
Strong	30	4.03			Strong	30	3.22		
Weak	28	3.85	-.618	n/s	Weak	28	4	2.880	$p = .006$
Strong	30	4.03			Strong	30	3.22		

Table 7.9.5-A3 (SH12)

Between group differences in retention of intent (Time A vs Time B) shown for lower income participants.

(M) Income - Lower: Time A vs Time B: Intent				
Condition	Time A	Time B	t-value	Sig.
Control	3.62	3.73	-.283	n/s
Weak	3.85	4	-.530	n/s
Strong	4.03	3.22	2.866	$p = .006$

Table 7.9.5-A4 (SH12)

Within group differences in retention of intent (Time A vs Time B) shown for lower income participants.

7.9.5-B1 SH13: Cognitive effects of inoculation will be more pronounced in lower income participants

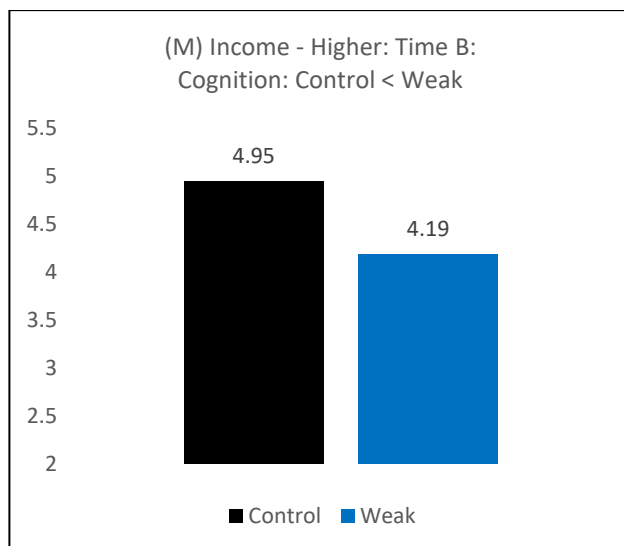


Figure 7.9.5-B1 (SH13)

Significant differences found in cognition retention for higher income participants when comparing no inoculation control with the weak inoculation argument at Time B.

7.9.5-B2 SH13: Statistical evidence

After applying ANOVA testing followed by t-testing between groups and within groups over the testing time period (Time A to Time B, approximately 12 days to 32 days), no significant differences or effects were found for lower income participants. Similarly, only one significant difference was found between groups when analyzing the data of high-income participants. The significant difference as shown in Figure 7.9.5-B1 was found to be at the second testing (Time B), with the no inoculation control experiencing significantly higher retention of cognition ($t = 2.05$, $p = 0.047$) in contrast to the weak argument inoculation group. The analysis results are detailed below in Tables 7.9.5-B1 and 7.9.5-B2. Based on these findings, the Subsidiary Hypothesis SH13 ‘*Cognitive effects of inoculation will be more pronounced in lower income participants*’ was not supported.

(M) Income - Higher: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	26	4.35	-.209	n/s
Weak	19	4.46		
Control	26	4.35	-.774	n/s
Strong	30	4.66		
Weak	19	4.46	-.175	n/s
Strong	30	4.66		

(M) Income - Higher: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	26	4.95	2.049	$p = .047$
Weak	19	4.19		
Control	26	4.95	1.731	n/s
Strong	30	4.38		
Weak	19	4.19	-.542	n/s
Strong	30	4.38		

(M) Income - Lower: Time A: Cognition				
Condition	N	Mean	t-value	Sig.
Control	26	4.33	-.676	n/s
Weak	28	4.21		
Control	26	4.33	.126	n/s
Strong	30	4.29		
Weak	28	4.21	-.227	n/s
Strong	30	4.29		

(M) Income - Lower: Time B: Cognition				
Condition	N	Mean	t-value	Sig.
Control	26	4.34	.642	n/s
Weak	28	4.13		
Control	26	4.34	.069	n/s
Strong	30	4.32		
Weak	28	4.13	-.588	n/s
Strong	30	4.32		

Table 7.9.5-B1 (SH13)

Between group differences in retention of cognition (Time A vs Time B) differentiating between higher & lower income participants.

(M) Income - Higher: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.35	4.95	-1.550	n/s
Weak	4.46	4.19	.708	n/s
Strong	4.66	4.38	0.804	n/s

(M) Income - Lower: Time A vs Time B: Cognition				
Condition	Time A	Time B	t-value	Sig.
Control	4.33	4.34	-.034	n/s
Weak	4.21	4.13	.253	n/s
Strong	4.29	4.32	-0.102	n/s

Table 7.9.5-B2 (SH13)

Within group differences in retention of cognition (Time A vs Time B) showing participants based on level of income (Higher & Lower).

7.9.5-C1 SH14: The emotional response to inoculation treatments will fade more severely for higher income participants than for lower income participants.

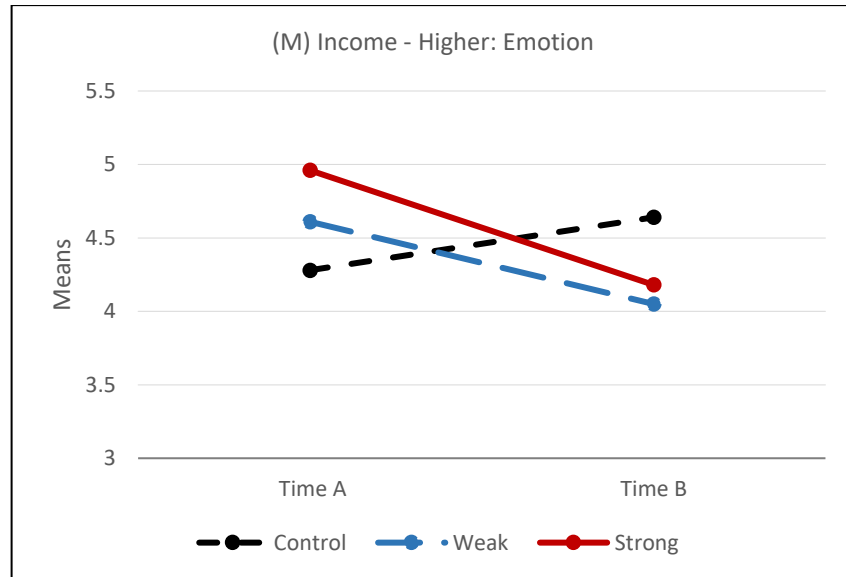


Figure 7.9.5-C1 (SH14)

Significant drop in retention of emotions over time shown for higher income participants exposed to a strong inoculation argument.

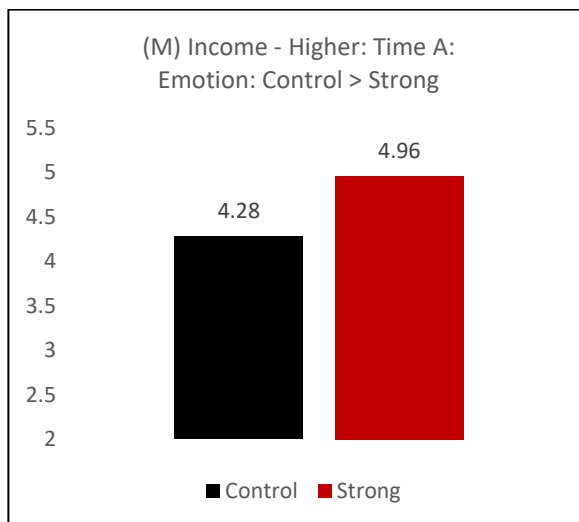


Figure 7.9.5-C2 (SH14)

Significant differences found in emotion retention for higher income participants when comparing no inoculation control with the strong inoculation argument at Time A.

7.9.5-C2 SH14: Statistical evidence

As with all previous testing, ANOVA with interactions was first applied to determine trends and clues to warrant further investigation. In this first testing of higher income participants, a significant interaction was found for the value of Condition*Time (Condition $F = .57$, $p = .57$; Time $F = 3.45$, $p = .06$; Condition*Time $F = 4.33$, $p = .015$). In following this analysis with t-testing, at Time A, the strong argument higher income participants experienced a significantly higher level of emotion when compared to those in the no inoculation control ($t = -2.39$, $p = .021$) (Figure 7.9.5-C2). This effect is lost over time however, as the no inoculation control trends favorably while the strong inoculation group experiences a significant decrease in effectiveness of the treatment over time ($t = 3.36$, $p = <.001$) (Figure 7.9.5-C1, Table 7.9.5-C2).

The same testing applied to lower income participants had first shown a significant interaction for time when examining the responses to emotion-based questions (Condition $F = .76$, $p = .48$; Time $F = 4.66$, $p = .03$; Condition*Time $F = .16$, $p = .85$). No significant differences between or within groups were found after conducting the further t-tests exploring emotion retention for the lower income participants. As no statistical differences were found for the lower income participants while higher income participants experienced a significant drop in the effectiveness of the strong argument and a downward trend (though not significant) occurring for the weak argument group, Subsidiary Hypothesis 14 (SH14 '*The emotional response to inoculation treatments will fade more severely for higher income participants than for lower income participants*') was confirmed.

(M) Income - Higher: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	26	4.28	-.992	n/s
Weak	19	4.61		
Control	26	4.28	-2.387	$p = .021$
Strong	30	4.96		
Weak	19	4.61	-1.284	n/s
Strong	30	4.96		

(M) Income - Higher: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	26	4.64	1.736	n/s
Weak	19	4.05		
Control	26	4.64	1.512	n/s
Strong	30	4.18		
Weak	19	4.05	.471	n/s
Strong	30	4.18		

(M) Income - Lower: Time A: Emotion				
Condition	N	Mean	t-value	Sig.
Control	26	4.55	.619	n/s
Weak	28	4.37		
Control	26	4.55	-.227	n/s
Strong	30	4.62		
Weak	28	4.37	-.895	n/s
Strong	30	4.62		

(M) Income - Lower: Time B: Emotion				
Condition	N	Mean	t-value	Sig.
Control	26	4.31	1.002	n/s
Weak	28	4.04		
Control	26	4.31	.547	n/s
Strong	30	4.16		
Weak	28	4.04	.522	n/s
Strong	30	4.16		

Table 7.9.5-C1 (SH14)

Between group differences in retention of emotion (Time A vs Time B) differentiating between higher & lower income participants.

(M) Income - Higher: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.28	4.64	-1.000	n/s
Weak	4.61	4.05	1.878	$p = .068$
Strong	4.96	4.18	3.355	$p = .001$

(M) Income - Lower: Time A vs Time B: Emotion				
Condition	Time A	Time B	t-value	Sig.
Control	4.55	4.31	.753	n/s
Weak	4.37	4.04	.265	n/s
Strong	4.62	4.16	1.725	n/s

Table 7.9.5-C2 (SH14)

Within group differences in retention of emotion (Time A vs Time B) showing participants based on level of income (Higher & Lower).

8. CHAPTER EIGHT: DISCUSSION

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 and Dickel 2011; Pomerantz et al. 1995) and testing of inoculation treatment as applied to different product categories (Bither et al. 1971). Despite the topic of inoculation needing far more exploration, the use of attitude inoculation by various practitioners, whether intentional or not, is in full effect. As with any tool, the use remains in the hands of those equipped with it. My research investigates these areas of interest, and further explores the effects of booster messages, subject relevance, and demographic. As a deeper understanding of attitude inoculation is developed, its objectively favourable usage can be enhanced, while the contrary is also true, that people can become aware of more detrimental applications. The findings of my research are discussed in this chapter.

8A. PRIMARY HYPOTHESIS SUMMARY

PRIMARY HYPOTHESIS SUMMARY		Results
PH1	Immediately after an inoculation treatment, a stronger inoculation argument generates more purchase intent than a weak inoculation argument.	Supported
PH2	After a short time (12-17 days), the weak argument will become more effective than the strong argument in terms of maintaining purchase intentions.	Supported
PH3	After a shorter time (12-17 days), emotions generated by inoculation arguments will fade more swiftly than cognitions.	Supported
PH4	Any initial purchase intentions will have disappeared after a longer time frame (21+days)	Not supported
PH5	In the long term (21+ days), both weak and strong inoculation treatments will be less effective than no inoculation in terms of maintaining cognition or emotion.	Supported
PH6	Higher subject relevance will amplify the effects of inoculation on purchase intent over time, making a weak inoculation the most effective long-term treatment.	Partially Supported
PH7	Higher subject relevance will amplify the effects of inoculation maintaining emotions and cognition	Partially Supported
PH8	Increasing subject relevance and enhancing the delivery medium will improve the effectiveness of both weak and strong inoculation arguments in terms of purchase intent.	Supported
PH9	Higher subject relevance, presented through enhanced delivery, will stimulate maintenance of more favorable cognition and emotion in response to inoculation treatments.	Supported
PH10	A booster message will improve the effectiveness of inoculation treatments on purchase intent.	Not Supported
PH11	A booster message will stimulate more favorable cognition and emotion in response to inoculation treatments.	Not Supported

8B. SUBSIDIARY HYPOTHESIS SUMMARY

Subsidiary Hypothesis Summary		Results
SH1	Males and females express the same pattern of intent generated by inoculation.	Partially Supported
SH2	After inoculation, males will maintain more cognition over time than females.	Not supported
SH3	Over time, females will have a more favorable emotional reaction than males after exposure to either weak or strong inoculation treatments.	Partially supported
SH4	Attitude inoculation will be more effective in maintaining purchase intent of older people than that of younger people, both immediately after exposure and in the long term.	Supported
SH5	Cognitive responses generated by weak and strong inoculation treatments will be more stable over time for younger participants compared to older participants.	Not Supported
SH6	SH6: Emotions will drop more swiftly for older participants than for younger participants, both for the weak and strong inoculation treatments.	Supported
SH7	SH7: The effects of inoculation on maintenance of purchase intent will be intensified for people in relationships.	Supported
SH8	SH8: Emotions and cognitions will fade more for single participants than for participants in relationships.	Not Supported
SH9	SH9: Inoculation treatments will be less effective in maintaining purchase intent for higher educated participants compared to lower educated participants.	Partially Supported
SH10	SH10: Cognitive effects of inoculation will be more pronounced in lower educated participants	Not Supported
SH11	SH11: The emotional response to inoculation treatments will fade more severely for higher educated persons than for lower educated persons.	Supported

SH12	SH12: Inoculation treatments will be less effective in maintaining purchase intent for higher income participants compared to lower income participants.	Partially Supported
SH13	SH13: Cognitive effects of inoculation will be more pronounced in lower income participants	Not Supported
SH14	SH14: The emotional response to inoculation treatments will fade more severely for higher income participants than for lower income participants.	Supported

8.1 MESSAGE STRENGTH AND LONGITUDINAL EFFECTS ON PURCHASE INTENT

Burgoon and King (1974) challenged researchers of attitude inoculation to investigate the results of language intensity used in future studies. The quantitative experiments conducted in this research have resulted in evidence supporting the notion that message strength is a significant factor in the effectiveness of attitude inoculation. Across all experiments conducted in this research, a weak inoculation argument was never found to be significantly more effective than a strong inoculation argument in terms of stimulating purchase intent immediately after exposure to inoculation. As predicted, the primary experiment conducted for testing this effect, experiment one, revealed a strong argument to be significantly more effective than a weak argument in stimulating immediate purchase intent (PH1). Early testing of attitude inoculation such as that of Burgoon and Chase 1973 has already identified stronger inoculation argument messages to be more successful than moderate or weaker arguments. Nevertheless, few researchers have pretested the strength of their inoculation arguments.

The effectiveness of inoculations of various message strength is moderated by time. As demonstrated in Experiment Two, at around two weeks' time, the effectiveness of the strong argument fades significantly, rendering a weak inoculation argument

significantly more effective in the maintenance of purchase intent (PH2). The drop in effectiveness of inoculation at around the two week mark has also been noted in other research (Banas and Rains 2010), though message strength had not been accounted for until my previous work (Gadiuta 2015).

After three weeks, as found in Experiment Three, the effects of both weak and strong inoculation treatments fade entirely (PH4). Over this extended timeline, the no inoculation control was found to reliably exhibit an upward favorable trend in purchase intent. The favorable trajectory of the no inoculation control contrasts the decline of both strong and weak arguments, with lack of effectiveness over time shown by the strong argument when directly compared to the no inoculation control. Put simply, in the long term, a strong inoculation is worse than doing nothing at all when it comes to maintaining purchase intent. The findings of my research support the work of Banas and Miller (2013), who – despite not testing the moderation properties of message strength directly – claim that differences in inoculation message framing produces different results.

8.2 SUBJECT RELEVANCE

According to Mayer and Tormala (2010) the packaging of a message, the framing, could generate higher levels of attention and even excitement. This is largely driven by the ability to process the message. Bither et al. 1971, along with other researchers, have touted attitude inoculation as a technique with the potential to address both users and non-users of products with a unified message, avoiding segmentation of audiences by the metric of use. The experiments conducted in this research suggest otherwise. As (Oh and Sundar 2015) explain, the focus on engagement is an alternative pathway for marketers to better influence attitude. It has been established that the impact of inoculation increases when the involvement of participants increases (Lin 2005). When subject relevance is higher, so too is engagement. As the topic fares better in capturing attention, emotional involvement

such as increases in self-esteem and even collective self-esteem is more likely (Compton 2016b).

Considering frequency of use (smoking), the combined data from Experiments Two and Three shows clear differences in participants' reactions to inoculation treatments, when contrasting low-frequency and high-frequency users. I had hypothesised that higher subject relevance would amplify the effects of inoculation on purchase intent over time, making a weak inoculation the most effective long-term treatment (PH6). The low-frequency smoker participants did not manifest any significant results, though, under any treatment condition. High-frequency smokers, on the other hand, experienced a sharp decline in the effectiveness of the strong inoculation argument over time. This resulted in no inoculation and a weak inoculation argument both being more effective in maintaining purchase intent over time, providing partial support for Primary Hypothesis 6 (PH6). While frequency of use is often correlated to subject relevance, this is not always the case. Of course. Based on the results of the data from Experiments Two and Three and previous literature, I decided to specifically increase the subject relevance in Experiments Four and Five through using a realistic advertisement instead of a scenario and finding a topic with high relevance for the target group. .

Pre-testing for Experiment Four and Five confirmed that the topic to be used in these experiments (job placement) is indeed one of high interest. In Experiment Four, a two-week delay was again applied. With higher subject relevance, both weak and strong inoculation treatments were found to be superior to no inoculation, being significantly more effective immediately after the exposure as well as over the two-week time frame. These findings confirmed the prediction that increasing subject relevance and enhancing the delivery medium improve the effectiveness of both weak and strong inoculation arguments in terms of purchase intent (PH8). Interestingly, this was the only experiment which showed a significant decline in the effectiveness of a weak argument over time, while the

strong argument maintained stable. This suggests that increased relevance may be a counter to the otherwise sharp decline of the effectiveness of a strong inoculation argument. Despite the drop in its effectiveness for maintaining purchase intent, the weak argument inoculation was still found to be significantly more effective than no inoculation, both immediately after the exposure, and after the two-week time period.

8.3 BOOSTER MESSAGES

As previously detailed in Chapter Two, by adding just one extra commercial Jeong et al. (2011) found audience brand recall increased by 7.79%, while increasing the commercial length only increased brand recall by 2.7%. Based on this and similar literature, I hypothesised that a booster message would improve the effectiveness of inoculation treatments on purchase intent (PH10). Experiment Five again consisted of a two-week testing period and included the addition of a booster message at the halfway mark.

The results of Experiment Five were similar to those found in Experiment Three, where no inoculation control ended up significantly more effective in maintaining purchase intent than a strong argument. The findings across the experiments show that a booster message will not improve the effects of inoculation as first hypothesized, but rather accelerate the eventual decay of the inoculation treatments' effectiveness. In this booster experiment, the accelerating effects rendered a strong inoculation treatment detrimental more quickly than in experiments where no booster was applied. While this 'acceleration' effect was uncovered, it is important to note that the booster message experiment was heavily disrupted by the COVID 19 pandemic, further discussed in section 8.8.2.

8.4 THE SLEEPER EFFECT

According to Foos, Keeling, and Keeling (2016) the sleeper effect is more likely to occur when the discounting cue follows a message rather than when the cue is present before a message. For the control groups in the experiments I conducted, a discounting cue followed the presentation of a message. As the control groups were measured at two-time instances comparisons were made between the inoculation treatments at Time A versus the control at Time A, as well as the inoculation treatments at Time B being compared to the control at Time B. To avoid longitudinal effects such as the sleeper effect changing the control, the control could be measured only one time. However, longitudinal influences of time are natural and thus should not be discounted when comparing against the effect of inoculation. While a single measure of a control may give a better indication of the impact of inoculation, it is too contrived, thus the latter option of multiple control testing was taken.

8.5 COGNITION AND EMOTIONS

Cognition and emotion are primary factors in the shaping of attitudes. In response to attitude inoculation, cognitive and emotional reactions vary, depending on the framing and treatment type. While cognition is certainly a factor, it appears that emotion is the primary driver behind the effectiveness of inoculation, especially in response to a strong inoculation argument. Wigley and Pfau (2010) had found participants of their inoculation study rating affective arguments as significantly stronger than cognitive arguments. Throughout the experiments conducted for this thesis, it was found emotions tend to be stronger initially, though they will decay faster than cognitions over a shorter time frame (around two weeks) (PH3). After around three weeks, the effects of both cognition and emotion fade significantly, regardless of the inoculation argument strength, being less effective than no inoculation at all (PH5). When subject relevance is increased, immediate cognitive and emotional response of both weak and strong arguments is increased and

both treatments are found to be more effective than no inoculation (PH7, PH9). This effect is successfully maintained over time. However, regardless of the subject relevance being high, when a booster message is introduced, emotions and cognitions appear to drop off as longitudinal decay of inoculation accelerates (PH11).

8.5.1 Cognition

Immediately after an inoculation treatment is administered, there are generally no significant differences between treatments (no inoculation, weak inoculation, and strong inoculation) in terms of cognitive reactions. Over the various time periods tested, there are no significant changes in cognitive responses within either of the inoculation treatment groups (weak or strong). In effect, because little cognitive reactions are generated by the inoculation treatments (weak or strong) to begin with, their decay over time is not significant. The longitudinal effects that do manifest between groups (no inoculation, weak inoculation, and strong inoculation), result from increases in the levels of cognition experienced by those in the no inoculation control groups.

When the subject relevance is high this trend changes. Both a weak and strong inoculation argument produce significantly higher cognitive and emotional responses than no inoculation immediately following an exposure as revealed in Experiment Four. With high subject relevance, these effects are maintained, with both the weak inoculation as well as the strong inoculation maintaining their significantly higher effectiveness over the no inoculation control.

8.5.2 Emotion

Misinformation will often rely on emotionally-charged arguments to manipulate public opinion. Banas and Miller (2013) present attitude inoculation as a potential preemptive measure to such persuasion attempts. In this study, I explored levels of emotion in response to inoculation itself. Over a two-week timeframe, both weak and

strong inoculation arguments produced significant drops in emotion. These drops were not significantly different to the no inoculation control, however, showing that enough cognition and emotion was sustained. When the time frame was extended (three to four weeks long), the drop in emotion for the weak argument was no longer significant. The strong argument, on the other hand, continued its significant negative trajectory. Despite the stabilization of the weak argument, both weak and strong inoculation treatments maintained significantly less emotion than no inoculation at all.

The decline of emotional response appears to correlate with the decline of purchase intent in the strong argument group, indicating that indeed, it is emotion that is the primary response and driver of the effectiveness of attitude inoculation. As discussed in Chapter Two under the Emotion title, Heath et al. (2006) recommend emotionally charged messages in low attention conditions. When subject relevance is increased, Experiment Four demonstrates the otherwise negative response in cognition and emotion appears to be countered. The increased subject relevance results in both the inoculation argument types, weak and strong, being more favorable than no inoculation. This holds true immediately after the exposure as well as over the two-week time period.

8.6 MODERATING EFFECTS

Data from experiments two and three was combined to analyse potential moderators of the resistance to attitude change process and the effects of inoculation. The combining of data was necessary to maintain acceptable participant numbers as the data was dissected into subgroups. These subgroups were demographic splits based on gender, age, relationship status, education, and income. Limitations on the moderator testing and process thereof are outlined in section 8.8, Limitations.

8.6.1 GENDER

While males and females are said to experience similar levels of emotion despite reporting it differently (Fisher and Dubé 2005) the general consensus is that women will respond better to persuasion attempts consisting of greater empathetic appeal (Shen 2015). The findings presented in this thesis show that there is only partial support for males and females expressing the same pattern of intent generated by inoculation (SH1). While a strong inoculation argument causes a sharp decline over time for both genders, it is only males who experienced a strong argument to be significantly worse than both a weak argument and no inoculation long term. I had hypothesized males would maintain more cognition over time compared to females (SH2). This would not be supported as no differences were seen in the cognitive reactions of men and women, with no significant differences found between the three treatment groups (no inoculation, weak and strong argument) at any stage. Both males and females in the strong argument group showed a significant decline in the emotional response to inoculation treatments over time. Though the same trend was exhibited by both genders for the strong argument, males additionally showed a significant drop in emotion over time in response to the weak argument exposure. The findings showed partial support for females having a more favorable emotional reaction when exposed to a weak attitude inoculation treatment compared to males (SH3).

8.6.2 AGE

Older consumers have traditionally been seen as being more reluctant to spend, yet have a much higher purchasing power in the present day when compared to any other demographic (Guido et al. 2018). This observation inspired my inquiry into the relevance of age as a moderator for attitude inoculation. Attitude inoculation was found to be more effective in influencing the purchase intent of older persons. With older participants, a strong argument was significantly more compelling than no inoculation immediately after an exposure. When testing younger participants, no significant differences in the treatment types (no inoculation, weak argument, and strong argument) were found after the initial exposure.

Despite the arguments not losing strength significantly over time, the strong argument was still found to be detrimental in the long term when compared to the no inoculation control. The older participant group experienced a sharp decline in the effectiveness of the strong argument, rendering both a weak inoculation argument and no inoculation significantly more effective in sustaining purchase intent. While the same end result is found for the strong argument in both younger and older groups, the maintenance of a weak inoculation treatment's effectiveness with older participants, combined with the initially favourable impact of the strong inoculation argument expressed by older participants, shows attitude inoculation is more effective in maintaining the purchase intent of older persons as hypothesised (SH4).

Measuring cognitive responses, the experiment results only reveal strong arguments produce an adverse effect compared to no inoculation for younger persons in the long term. This finding revealed attitude inoculation would be more stable in the maintenance of cognitions for older persons, not younger persons as hypothesised (SH5). Measuring different age groups' emotional responses revealed a significant drop off for

emotional responses to strong arguments by older groups despite greater relative initial emotional response. The weak argument also produced the same trend, though narrowly failing to reach significance. As such, emotions appear to drop more swiftly for older participants than for younger participants (SH6).

8.6.3 RELATIONSHIP STATUS

Combined data from experiments Two and Three show that the effects of inoculation are intensified for people in relationships when measuring purchase intent (SH7). In fact, the data revealed single participants were not at all effected by the inoculation process at any point, by either a strong or weak argument. The lack of significant effect experienced by single participants was not only found for purchase intent, but also in the measures of cognition and emotion. Because inoculation did not produce any significant effects on this subgroup, the notion that emotions and cognitions would fade more for single participants than for participants in relationship was not supported (SH8).

Those in a relationship exposed to the strong inoculation argument experienced a significant decline in their purchase intent over time, resulting in both no inoculation and a weak inoculation argument being significantly more effective strategies for long-term purchase intent maintenance. In the measure of cognition for coupled participants, no significant change was seen within the various argument groups. Despite this, both inoculation treatments exhibited downward trends. This was enough change to make no inoculation significantly superior to both inoculation arguments in terms of maintaining favorable cognitions. The measure of emotions on the coupled participant group also showed the no inoculation control to be significantly more suitable for sustaining favorable emotions compared to either inoculation treatment (strong or weak). Significant declines were expressed within both the weak and strong argument groups. The findings indicate

that when segmenting by relationship status, only coupled persons were affected by inoculation, and in the long term, these effects were negative.

8.6.4 EDUCATION

Partial support was found for inoculation being less effective for maintaining purchase intent in higher-educated persons (SH9). Both higher- and lower-educated participants within strong inoculation argument group experienced a significant decline in the strong treatment's effectiveness over time. In the long term, the strong argument was found to be less effective than no inoculation for both higher educated and lower educated participants. For lower-educated participants however, the weak inoculation treatment was also significantly better in maintaining purchase intent compared to the strong inoculation treatment.

No significant cognitive effects were found for either education group and no differences were identified between the groups. These findings rejected the assumption that cognitive effects of inoculation would be more pronounced in lower educated persons (SH10). Regarding emotional reactions, it was confirmed that the response to inoculation treatments would fade more for higher educated persons than for lower educated persons (SH11). Higher educated participants in both the weak and the strong argument groups experienced significant decay in the effectiveness of the inoculation's maintenance of emotion. Despite the significant drop in the emotional response from the higher educated participants over time, no meaningful difference was discovered between the three treatment groups (no inoculation, weak and strong inoculation). Lower educated participants showed no significant decline in their emotional response to either weak or strong arguments. Compared to no inoculation, the strong argument was found to be detrimental for the lower educated demographic, while the weak argument had no long-term negative effect for this group.

8.6.5 INCOME

The data shows partial support for inoculation treatments being less effective in maintaining purchase intent for higher income participants compared to lower income participants (SH12). Both higher and lower income participants in the strong inoculation argument group experienced a significant decline in their level of purchase intent over time. For higher income participants, this decline resulted in the no inoculation control being significantly more effective than a strong inoculation. The weak argument did not show a significant decline for either wealth groups, however, the trajectory of the argument effectiveness differed. Argument effectiveness decreased over time for higher income participants and increased over time for lower income participants. For the higher income group, the weak argument's declining trend resulted in significantly less effectiveness than the no inoculation control. Weak argument inoculation was received more favorably by lower income participants, eventuating to significantly more effectiveness for maintaining purchase intent when compared to strong argument inoculation.

It was hypothesised cognitive effects of inoculation would be more pronounced in lower income participants (SH13). This was not found to be so, as the only significant finding in the measure of cognitions across groups was from higher income participants where the no inoculation control was found to be significantly more effective in maintaining cognition compared to a weak inoculation. In measuring emotions, lower income participants did not experience any significant effects between or within any treatment condition.

Higher income participants initially expressed significantly higher emotional responses to a strong inoculation argument than their response to no inoculation. However, this success of the strong argument would also fade significantly over time for the higher income group. While in the end, no differences were found between the

treatment groups (no inoculation, weak inoculation and strong inoculation), the hypothesis predicting emotional response to inoculation treatments would fade more severely for higher income participants than for lower income participants (SH14) was supported.

8.8 LIMITATIONS

While I attempted to minimize the effect of limitations on the overall findings by providing different framing and using different subject groups, the limitations discussed in this section are none the less of importance. The limitations discussed are possible circumstantial aspects within the various experimental methods and studies used and conducted in this thesis. Some were even ‘acts of God’ and unavoidable. In this section, I will outline and discuss the limitations identified in this thesis.

8.8.1 GENERAL LIMITATIONS

The experiments conducted in this thesis all rely on self-reporting. The primary weakness of self-reporting is the potential in exposure reminders during the questioning process as well as biased and or incomplete answers. Tactics like self-reporting directly measure explicit response and tend to neglect direct implicit measure (Vandeberg et al. 2015). As discussed under the ‘Memory’ section in Chapter Two, the implicit and explicit systems are more reliant and influential on one another than earlier research had suggested. The moderators tested in this study, (age, gender, relationship status, education, and income) were all tested within Experiments Two and Three. The limitation facing the results is the subject matter of dental health, where any of these moderating factors may be found to produce different results when scenarios consist of other subject matter.

There is also some limitation regarding access to literature. While everything was done to ensure that all the latest relevant literature to date is included, some articles may indeed have inevitably been missed. This is primarily due to release dates of journals

differing to submission dates of publications. Additionally, there are instances where article releases do not coincide with database access. The release schedule and geographic restrictions can also cause limited and or delayed access to certain journal volumes. During the final stages of writing this thesis, a paper written by Ivanov, Parker, and Dillingham (2018) was found. Their paper, much like this thesis, explores the topic of booster messages and the extended longitudinal effects of attitude inoculation. Although the framing and limitations of their paper are different, the work of Ivanov et al. (2018) comes to similar conclusions to those found in the research conducted for this thesis, primarily being that message efficacy is eroded with the passage of time.

8.8.2 ONLINE SURVEYING

Experiments One, Two and Three were all limited by the nature of online surveying and use of panel data. As noted in Chapter 7, several problems occurred because of this medium. Firstly, the main concern was the drop-out rate due to the longitudinal nature of the experiments. As with previous experiments of this nature using online surveying, more than half of the participants had dropped out before the second measure at Time B. As there was no direct contact available with the participants, and only reminders in the form of e-mail and online prompts could be sent, it was impossible to ensure that the returning participants would all complete the reconnect at the same time. Because of this, I had to allow for variations of time within each experimental condition (12-17 days, and 18-32 days respectively).

As there is no supervision of the participation / completion process, there is also no way to eliminate distractions or even guarantee that it is the same people completing the reconnect. As discussed in Chapter 7, I did discover that several participants had someone else complete the second sitting of the survey at Time B. While these participants were removed, it cannot be guaranteed that others did not do the same and

were undetected. Additionally, due to the high drop-out rate, in order to test the effects of moderators with large enough participant numbers to form demographic sub-groups (gender, age, relationship, education, income), data from experiments Two and Three had to be combined. As a result, some participants were exposed to longer time dilation than others and it may not be the moderators themselves responsible for differentiating outcomes. This limitation of retesting allows conclusion of a pattern, but not an absolute timeframe for the effects on the moderators discussed, with results potentially differing should a stricter timeline have been held, especially considering that experiments in this study, as well as previous literature, agree that 14 days is the longitudinal extent of the unaided effectiveness of inoculation.

The medium used in the first experiments (Experiment One, Two and Three) was text-based communication, where subjects are asked to imagine themselves in the scenario depicted. Processing text requires much more attention than audio or graphic media. When Experiment Four introduced scenarios accompanied by graphic advertisements, the effects of inoculation were bolstered. While it could be simply that engagement is the underlying mechanism, there is also reason to suspect that the delivery medium itself may be a factor. Further research is warranted in testing the differences between reaction to inoculation as presented over different media formats.

The studies conducted were designed to encourage a higher involvement from participants, aiming to evoke stronger reactions to the subject matter (Millar and Millar 1990). In real-world settings, it can be expected that people may not be as motivated or able to process communication messages with a consistent or committed level of engagement. The opposite is also true, where in a real world setting higher stakes may also be in play, with more intensified responses to more relevant subject matter. Lim and Ki (2007) show that in instances where participants do not hold strong opinions prior to the

inoculation treatment, participant involvement is unlikely to impact the effect of the inoculation treatment.

Such limitations of online surveying were the motivators behind conducting experiments Four and Five using pen and paper responses with a captive group allowing for more control over the retest and greatly reducing the participant dropout rate. Unfortunately, these experiments were conducted in the year 2020, when in-person participation was extraordinarily compromised by the COVID19 pandemic.

8.8.3 COVID 19

The global pandemic caused by the virus COVID19 had a disruptive impact on the research conducted in this thesis. Firstly, emotional reactions to attitude inoculation treatments were to be further investigated with a small group of participants through electroencephalography scanning. The human brain gives off a very subtle amount of electricity when neurons are engaged. On their own, the trace amount is far too low to measure. However, using a non-intrusive device that sits on the scalp, when a group of neurons is active, a measure indicating an increase or decrease in emotional stimulation becomes possible. Such measures were first conducted in the 1920's by Hans Berger who measured the voltage, current and resistance given off by the brain in different situations. Due to lockdown mandates and strict social contact limitations this final experiment could not be conducted for this thesis.

New Zealand underwent multiple lockdowns where gatherings of more than 10 people were prohibited. Schools, including universities would be commenced online or even cancelled. Due to an instance of new COVID19 community cases, an alert level change occurred exactly one day prior to the ending of Experiments Four and Five. These

experiments depended on student participants' in-person involvement. Due to the timing of the lockdown, most longitudinal responses could not be completed, drastically lowering the number of participants. This especially impacted the booster message experiment, Experiment Five, where the control group was left with only nine completions.

Though significant findings emerged, the undesirable low number of participants may have severely skewed the result. In Experiment Four, both the strong and weak arguments maintain superiority over time when compared to the control. The same scenario is used in Experiment Five, however the booster message appears to have swayed the control group to overtake the favourability of those in the inoculation groups. While this was statistically sound, due to the exceptionally low number of participants in the control group of Experiment Five, it is also plausible that a bigger sample size would result in a more similar outcome to that found in Experiment Four. This would drastically change the notion that booster messages increase the speed of the inoculation effect, and rather would suggest, as hypothesised, that booster messages instead bolster inoculation treatments. Such a limitation leaves great need for future research to explore booster messages further.

8.8.4 SCENARIO LIMITATIONS

While multiple experiments were conducted, with two unique topics (smoker toothpaste and job placement), along with three scenario conditions with unique inoculation message strengths (strong, weak and no inoculation control) being used, the messages over time did not vary, nor did the point of the messages used. In real world persuasion attempts, especially in marketing environments, multiple message appeals are often employed. As discussed by Ivanov et al. (2016), pairing multiple message strategies is a promising means to increasing the likelihood of a successful inoculation treatment campaign. Though emotion appears to be driving the response to attitude inoculation, this

may simply be due to the scenarios used. Though this research has shown that generally participants did not think about the arguments and few significant effects were found for cognition over time between or within groups, this may have been in part due to the delivery methods. A topic that has higher consequences may yet produce different results.

As experiments Four and Five only used participants who were university students, there is the possibility of limitations due to the participants all having higher education. As there was little subtlety in the delivery of the inoculation treatments it is likely that, being more educated, students were also more sceptical and had less trust in the scenario defence inoculation arguments (Brinol et al. 2006; Fazio et al. 1989). As shown in the findings of Experiment Three, higher educated persons do have significantly differing response to inoculation compared to lower educated persons.

The booster message applied was a graphic advert placed on the projector of classes for 5 minutes at the start of class time. There was little control over the booster message, and its presentation may have felt more contrived. Although the subject of job placement was of high relevance to students, there was no measure of how much time each participant spent engaging with the booster message.

In many of the experiment surveys conducted, increases were found in the effectiveness of no inoculation controls maintaining purchase intent, cognition, and emotions. An explanation for the increase in the effectiveness of the no inoculation control may be the sleeper effect as discussed in Chapter Four (4.1.5) However this phenomenon was not tested for in this research and was found to be a surprising effect. Further research would benefit from establishing a clear understanding for why this increase occurs.

9. CONCLUSION

Literature to date presents attitude inoculation as being a most promising strategy in building resistance to attitude change, especially in a marketing context. Eisend (2006) along with many other scholars (Bither et al. 1971; Kim 2013; Parker et al. 2012) have conducted studies which have demonstrated that inoculation treatments are well suited for developing resistance to attitude change in a marketing environment. Despite the advantage's inoculation appears to hold over competing attitude resistance methods, there are many aspects of attitude inoculation that have not yet been sufficiently explored. At this time, scholars have determined forewarning, refutation motivation and threat identification as requirements for successful attitude inoculation (Banas and Richards 2017; Compton and Ivanov 2012). In my research, I have shown that inoculation argument strength, time and message framing also severely impact the effectiveness of inoculation treatments. More importantly, I have also shown that in many cases, inoculation is not at all a suitable strategy for maintaining resistance to attitude change. From the findings of this thesis, a good argument is to be made that inoculation requires many factors to be in synchrony to be successful.

In addressing purchase intent, a strong argument is most effective immediately after an exposure. While this is highly valuable in the short term, the effectiveness of a strong argument will fade drastically over time, to the point that having applied a strong inoculation treatment is worse than having done nothing at all. This effect appears to be mitigated, however, by subject relevance. When subject relevance is high, the effectiveness of a strong inoculation argument is maintained over a longer duration. While a weak argument is not initially favourable, over time, a weak inoculation argument is generally more effective than a strong argument, with a successful weak inoculation

treatment peaking at around two weeks. When inoculation must be applied, a weak inoculation is the safest long-term option. This is especially true when subject relevance is not high such as in cases where one message must be presented to both users and non-users. The weak inoculation strategy is also suitable when the goals of a campaign are long term success, with a high need to reduce risks of adverse attitudes being developed. Contrary to expectations, a booster (reminder) message does not bolster the effectiveness of attitude inoculation, instead it appears a booster accelerates the natural longitudinal effect; unless the moderating factors are accounted for, inoculation exposed to a booster risks being detrimental.

Attitude inoculation treatment has yet to be studied to a point where it is comfortably understood. Only with more research and real-world case studies will practitioners come to apply attitude inoculation with confidence and accuracy. In practice, attitude inoculation can be applied to any field that executes a level of communication. Attitude inoculation has been applied and tested in medical, political, commercial and military settings and has proven to be a persuasion technique that is not limited by industry (Becker 2017; Ivanov et al. 2016; Lin 2005; Niederdeppe et al. 2014). This thesis has clearly shown that effectiveness of attitude inoculation is guided by the inoculation message strength, the passage of various time frames and subject relevance. The success or lack thereof is also guided by moderating factors such as additional messages (boosters), gender, age, relationship status, education, and income. It does not appear that a generalized prescription for inoculation treatment would be effective, and if the message is strong, the effect may even be detrimental in the long term and at best effective only in the short term. Though inoculation can be successful, it should not be applied sparingly, but rather purposefully, with inoculation arguments being tailored for suiting specific goals.

9.1 CONTRIBUTIONS

The primary contribution of the studies conducted in this research is highlighting the importance of longitudinal studies of attitude inoculation. Though immediate effects are of high interest, often there may be long-term implications. A more recent study (Braddock 2019) tested the effectiveness of attitude inoculation as a means to reduce intentions to support hateful propaganda from extremist groups. While this is an admirable test of inoculation and the results were favourable, this was not a longitudinal study. As shown in the experiments conducted as part of this thesis, inoculation will often work well initially, however over a longer period, the effects can even be negative. This is particularly concerning when applying inoculation to a subject area such as hateful propaganda.

At the time of this writing, we are firmly in the age of information. However, we are also living at a time where propaganda and misinformation is rampant. One illustrative contentious issue is that of climate change, where despite a 97% agreement between climate scientists concluding humans have caused accelerated and or increased climate change, the spread of misinformation has undermined public support for climate action (Maertens, Anseel, and Van Der Linden 2020). On the matter of climate change misinformation, Maertens et al. (2020) applied inoculation against climate change denial, concluding that inoculation is an effective means to maintaining favourable attitudes. While the study reported attitude stability with only partial decay over time, the period assessed was only 7 days. As discovered in my Experiments Two and Three, the effectiveness of inoculation must be tested over longer periods of time. Should inoculation be implemented in a campaign challenging climate change misinformation, if the inoculation strategy is not correctly executed, and the audience is not accurately targeted, the results may be adverse and could even result in the increased spread of misinformation.

Concerns for longitudinal changes in the effectiveness of inoculation are also valid where researchers seek to study commercial framing of inoculation. Kim (2013) for example, explores the idea of inoculation being applied before a corporate crisis, where pre-emptive inoculation may lessen negative attitudes towards a brand. Kim does not examine the longitudinal effects of the inoculation treatment, and thus does not account for potential negative long-term effects, perhaps leading a brand to worse outcomes compared to those if no inoculation was applied. This be especially dire during a corporate crisis, where engagement response is likely to be highly emotional (Gnepa 2012).

While some inoculation studies have explored the framing of the inoculation message itself (Banas and Rains 2010), to date other researchers have not yet examined the implications of the inoculation message strength. Along with my previous work (Gadiuta 2015), the studies conducted as part of this thesis are unique in addressing the question of message strength when concerned with attitude inoculation. The findings from the studies conducted in this thesis regarding message strength align well within existing attitude models such as the Elaboration Likelihood Model of Persuasion, Two Systems and Heuristic Model of Persuasion (Chaiken 1987; Daniel Kahneman 2011; Petty and Cacioppo 1986). As such, the work conducted is a suitable starting point for future researchers of inoculation to consider testing inoculation message strength and applying various message strengths to their inoculation studies accordingly.

The way inoculation attempts are processed by message receivers is another key area of interest to which this thesis has contributed. This was done by building upon the work of Wigley and Pfau (2010), who were among the first to explore the emotional and cognitive reaction process in response to inoculation treatments. The studies conducted in this thesis found that emotional processing in response to inoculation arguments were more active than cognitive responses. This supports the findings of Wigley and Pfau (2010), who under different framing and experimental conditions, came to the conclusion

that more affective framed inoculation arguments were significantly more effective than cognitive framed inoculation arguments.

To date, most of the inoculation research does not explore potential moderators of the inoculation process, such as demographic, geographic and psychographic factors. The moderators tested in this thesis work reveal that different population segments can respond uniquely to an inoculation treatment. This challenges the long-held notion that inoculation may be cast out as a wide net targeting both users and non-users (Bither et al. 1971). Instead, based on the findings of the survey experiments conducted, attitude inoculation is similar to evaluative conditioning in that effectiveness varies amongst user groups (Shaw et al. 2016). Similarly with evaluative conditioning, for example placement of disgusting images on cigarette packages. Though this has been shown to be effective in deterring non- or light-users, it has not had the same impact on heavier users (Shaw et al. 2016).

Experiments Four and Five were amongst the first reported studies to explore the concept of booster messages. While it is fair to assume that a booster message will increase the effectiveness of inoculation, based on the results of the experiments, scholars must also consider that a booster message will speed up the process rather than bolster an inoculation treatment. The work conducted is ideal as a starting point for future research concerned with booster messages applied to the inoculation process.

9.2 PRACTICAL APPLICATIONS

Attitude inoculation has potential for extensive applications within the field of marketing as suggested by Bither et al. (1971 and Lessne and Didow (1987). McGuire also found persuasive messages resulting in attitude change would also likely lead to attitudinal changes on logically related ideas. The increased application of attitude

inoculation within marketing may be prosperous for those who use the strategy adequately. The findings in my research can be used to support broader applications.

My research recontextualizes approaches to attitude inoculation currently suggested by multiple prominent researchers as inappropriately generalized. The principle point of difference to consider is the extended time delays under which inoculation was tested during my research, and what that revealed. Long-term effects of inoculation were the focal point of investigation, with Experiment Three being the longest experiment on inoculation conducted to date. My research also informs when inaction is favorable for an inoculation strategy. For certain cases, like when communicating a message to a non-user group or when an attitude is to be maintained long-term, avoiding inoculation treatment altogether is the more promising strategy. My research has shown that inoculation should not be delivered in a 'one size fits all' format. This is contrary to what is currently suggested by multiple prominent researchers concerned with inoculation (Bither et al. 1971; Ivanov et al. 2017; Parker et al. 2012; 2016).

Considering argument strength, practical application can be highly situational for a strong inoculation treatment. A strong inoculation argument appears to only be effective immediately after an exposure unless relevance is high. Especially when producing a combined message for both users and non-users, strong inoculation treatment should be limited to where the subject relevance to an invested user can be expected to compensate for a negative reaction, and limited to where there is little or acceptable loss from an attitude turning negative in the long term for a less invested or non-user.

When people decide to go skydiving, they will first be shown instructional videos and on the day are taken through basic training. While the jump is the objective for customers, less invested users will more likely have hesitation and decide against completing the jump even when already on the plane. To help reduce this hesitation and

maintain favorable attitudes toward going ahead with the jump, a strong inoculation treatment would be an appropriate strategy to use during training and instructional videos, specifically tailored to people who have not engaged with skydiving before.

Strong inoculation can similarly be used in other contexts like political campaigns just prior to an election. As strong arguments require more involvement, they are arguably better used in situations where there is higher subject relevance for the attention and engagement from message receivers (Lemanski and Lee 2012; Petty and Cacioppo 1986). Strong inoculation treatments are also suitable where there are time constraints, as in the case of research. In the field of attitude inoculation research itself, researchers are constrained by time and cannot commit to longitudinal experiments. Use of strong inoculation arguments is essential for experiments testing the immediate effects of inoculation. Where findings are significant, testing may commence on longitudinal studies seeking long term resistance to attitude change further investigating weak inoculation arguments.

A weak inoculation argument becomes more effective over time, peaking at around a two-week mark. Most importantly, a weak argument is not detrimental in the long term where strong arguments fall short. Service providers who depend on sustained long-term business with clients are necessarily more dependent on customer satisfaction. Businesses valuing long-term favorable attitudes particularly stand to benefit from use of weak attitude inoculation strategies. Most service providers are themselves reliant on other service providers. For instance, an internet provider is reliant on an independent power company to provide their own internet service to a client. If the internet provider loses power, they will no longer be able to provide their own customers with internet. Though a customer's home may have power, if the internet provider's electricity is disconnected, the ISP will be unable to provide their users with internet. As it is very difficult to guarantee absolute service uptime due to external factors and acts of god, businesses should

prepare their customers for the possibility of unforeseen downtime (Mikolon et al. 2014). Considering service providers are so dependent on customer satisfaction, maintaining favourable attitudes is of the uttermost importance, and not something that should be left to work on after a negative service event.

The application of weak argument attitude inoculation is highly suitable for messages aiming to maintain attitudes that must be kept favourable while minimising the risk of adverse attitudes resulting in serious consequences. Matusitz and Breen (2013) promote attitude inoculation as an ideal means to treating prisoners, maintaining favourable attitudes shaped by rehabilitation programs during and after incarceration. For such a long-term, high-stakes scenario, it is essential to reduce adverse effects and take care to communicate inoculation treatment with special attention to message framing. Such considerations are applicable to any such area where risks of adverse effects are highly undesirable.

For other high-risk situations such as in medical practice, treatment for illnesses ranging from seasonal flus to cancer are improved if the patient's attitudes toward difficult medication and rehabilitation remain positive. On a wider scale, the global pandemic of COVID-19 remains ongoing at the time of writing. The COVID-19 crisis presents a situation where sustained favorable attitudes are desired toward the wearing of protective face masks along with social distancing, medicine, and treatment programs. Campaigns for promoting these measures must be carefully devised and enacted to minimize the extent to which they are compromised by negative reactions. Weak inoculation treatment is favorable for sustaining the desired attitudes long-term, where strong inoculation is both less effective over time and incurs maximum risk of negative long-term reaction.

The attractiveness of attitude inoculation is its wide marketing application potential. Inoculation especially holds potential for successful use in political campaigns, as well as

campaigns from high profile brands seeking to protect themselves against doppelgänger products along with brands simply seeking to maintain customer loyalty. Inoculation is even suitable for social / public service efforts. Many other medical conditions influenced by behaviour (e.g., sexually transmitted diseases, skin cancer, anorexia) can be avoided all together through attitude adjustment (Matusitz and Breen 2010). While attitude inoculation can be highly effective, in this thesis, I have demonstrated inoculation can also be detrimental, and attention must be given to more factors including message strength and desired timeframes of effectiveness.

During rapid increases in attacks on political attitudes, inoculation had been shown to be an effective means of providing resistance to attitude change (Lin 2005). The successful application of attitude inoculation under political framing, though only short-term, was also demonstrated by Niederdeppe et al. (2014) who applied inoculation when changing beliefs about policy to do with soft drink taxation. A more prominent case study reviewing the use of attitude inoculation in a political context, involves America's 45th President, Donald John Trump. On the Saturday Night Live show, featured on the NBC network, Alec Baldwin takes on the part of Donald Trump, placing the 45th president of the United States as the subject of comedic satire in various skits (King 2018).

Seemingly unimpressed, unlike previous presidents, Donald Trump took to expressing his disapproval on the social media platform Twitter. Whether knowingly or unknowingly, Donald Trump successfully applied attitude inoculation treatments on his followers. As shown in my research, emotions drive the effectiveness of inoculation. As inoculation communication is more emotionally charged, when emotions are favourable, the effectiveness of inoculation will likely increase. Becker (2017) evaluated the impact of Trump's inoculation treatment, confirming the treatment had indeed been effective in protecting viewers' attitudes from being persuaded by the anti-Trump tone of the SNL skits. Becker (2017) found Trump's Twitter responses had even served to rally those that

strongly dislike the president, turning many against NBC and Saturday Night Live. Further yet, the counter arguments had been so effective, the exposure to Trump's continued counter attacks against SNL also resulted in less favourable attitudes toward the Democratic party and Donald Trump and Mike Pence's 2016 election opponents, Hillary Clinton and Tim Kaine. Whether the use of attitude inoculation was intentional or not, such a case study demonstrates a real world, practical application, providing situational evidence for the effectiveness of attitude inoculation in a political context.

Attitude inoculation has been shown by scholars to be generally effective. My primary contribution to the study of attitude inoculation has been the identification of longitudinal effects: Strong inoculation can in fact be detrimental over time; when inoculation is applied, weak arguments are best used in long-term; that circumstantially, inoculation is best avoided altogether, especially over longer periods of time; booster messages appear to accelerate the longitudinal effects of inoculation; and demographic factors will moderate inoculation.

As our knowledge of the workings of attitude inoculation is still in its infancy, care must be given in applying the strategy as there is a danger of misuse of inoculation leading to undesirable effects (Compton 2016a). Identifying the sharp decline of strong inoculation treatments over time along with uncovering the robustness of weak inoculation provides opportunity for more targeted applications, in research context and for real world applications. Likewise, considerations must also be given for what appears to be emotions driving the effect of inoculation, where maintaining favourable emotional response could be a particular challenge. Furthermore, the importance of subject relevance in the

effectiveness of inoculation has also been clarified. Additionally, a starting point has been provided for booster messages, which in this thesis, have been determined to accelerate the effects of an inoculation treatment, rather than bolstering the effects of inoculation as first supposed. Lastly, the responses to inoculation treatments from different demographic groups show inoculation should be targeted and not used sparingly as a prescriptive 'one-size fits all' strategy.

9.3 FURTHER RESEARCH

Inoculation should be explored with more personal topics such as sports team allegiance or political preferences (Bither et al. 1971). High relevance has been shown to be a major factor in the effectiveness of inoculation and testing the specificities of what constitutes relevance should yield sophisticated results. Manipulation of argument strength may be adjusted through adding supportive framing such as the premise of morality in the argument (Luttrell et al. 2016). It is likely the experiments in this study evoked more subtle, implicit responses. Future studies would benefit from stimulating explicit processes, especially going as far as to distinguish between implicit and explicit stimulation (Chechile et al. 2012; Vandeberg et al. 2015). This may be achieved by simply using well known, real world brands and testing the effectiveness of inoculation on pre-existing attitudes towards such brands. While this approach comes with more hurdles such as drastically increased limitations due to external factors including exposures and communications in favour and against the used brands, such work would be beneficial as confirmatory study for the findings conducted in this thesis.

Most of the experiment conditions in this study have shown emotion to drive inoculation response. The lack of cognitive response seen through the results may very well have aided in cases where application of inoculation was detrimental. Further research on the cognitive response of inoculation should be explored, especially under

high relevance, high involvement conditions. Stimulating thinking during inoculation would be beneficial and something that should be considered within the message delivery. Varied cognitive stimulation should be a high priority research area when concerned with the workings of attitude inoculation.

Though I have shown differences in the strength of inoculation messages as primary factors, further testing of additional attributes of message strength should also be explored. Previous research has shown inoculation-different messages increasing effectiveness with less decay; I am left to wonder if this does support the idea that the underlying mechanism is actually perceived argument strength, with inoculation-different messages being seen as weaker arguments as attitude-same messages may have stimulated more initial motivation to defend attacks. I recommend future research address this by testing for the effectiveness of '*strong-inoculation-same*', '*strong-inoculation-different*', '*weak-inoculation-same*' and '*weak-inoculation-different*' messages.

While in agreement with Pfau et al. (2006) that booster messages are a primary factor for increasing the persistence of counter arguing as a result of attitude inoculation, I am sceptical about the application of boosters. As discussed in Chapter Eight the testing of the booster message in this thesis had many unfortunate limitations. First, a confirmatory study of the booster message findings should be conducted with much higher participant numbers. Secondly, as framing has been shown to be critical, booster messages should be tested under multiple contexts and through various media. Becker (2017) demonstrates President Donald Trump's Twitter activity as inoculation. Based on this, a case may be made for repeat booster messages to maintain the effects of a given inoculation treatment. When measuring the effectiveness of repeat booster messages, the booster message itself should also be varied and accounted under different moderators and levels of message strength.

As presented throughout this thesis and discussed in Chapter Eight, section 8.5.2, emotion is a heavy influence on the workings of inoculation. As discussed in Chapter Two under the emotion heading (2.6.1), Heath et al. (2006) recommend emotionally charged messages in low attention conditions. As booster messages would not be as extensive as an original treatment exposure, the emotional framing of the booster messages should be further investigated as the key to a favorable booster may be an emotionally charged appeal, specifically targeting favorable emotion toward the subject matter. Finally, in real marketing conditions, it is highly likely that people are exposed to more than one booster message. The effects of multiple booster messages, whether for the same inoculation goals or competing, should also be tested.

Regarding moderators, more unique testing would be appropriate. While this study is the first to explore many moderating demographic factors such as gender and age, more scrupulous experimentation would be ideal. For instance, Wang and Chen 2006 have shown that when it comes to attitude change, in low involvement conditions, age is not a significant factor. However, in high involvement conditions, young adults will more readily change attitudes regardless of exposure amount while older persons experience attitude change only when more supportive arguments are engaged. Such detailed examination would also be suitable for better understanding the effectiveness of attitude inoculation on different demographics.

The moderators tested in this research consist of demographic segmentation including gender, age, relationship status, education, and income. Due to the complex workings of attitude inoculation, personal variables such as intelligence, personality traits and self-esteem may in fact be more influential moderators due to the increased likelihood of such factors forming different attitudes and behaviours (Fishbein and Ajzen 2010). Most importantly, the demographic subgroups tested were only exposed to one scenario concerned with dental hygiene. Thus further testing under different conditions is required.

Future researchers of attitude inoculation should consider posing questions such as how various inoculation strategies work on unique personal variables and demographics. The studies conducted in this thesis can be used as a starting point, showing the importance of consideration of potential moderators when experimenting with attitude inoculation. Inoculation is not a one-size fits all strategy, but rather a method that requires unique targeted framing. Future researchers should consider targeted demographic, geographic and psychographic testing of attitude inoculation.

Compton and Pfau (2009) present the possibility of inoculation spreading through word of mouth, which in the context of my research should be appreciated to both incur scaling volatility for effectiveness, and volatility for message perception. If the effectiveness of inoculation deteriorates under certain conditions, 'viral' spread of inoculation through word of mouth may be a negative occurrence, not a positive side effect. It was McGuire (1960) who first identified the halo effect being a biproduct of inoculation, where treatment receivers have been determined to 'grow' their own counter arguments, even in the face of arguments they were not exposed to in the treatment. Further studies of inoculation should consider the 'viral' effects of inoculation and seek to examine the process with consideration for message strength and inoculation timeframes.

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APPENDICES

APPENDIX ONE – ETHICS APPROVAL LETTERS



Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

7 November 2018

Roger Marshall
Faculty of Business Economics and Law

Dear Roger

Re Ethics Application: **18/368 The effectiveness of attitude inoculation over time**

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

Your ethics application has been approved for three years until 7 November 2021.

Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/research/researchethics>.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/research/researchethics>.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/research/researchethics>.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation, then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries, please contact ethics@aut.ac.nz

Yours sincerely,

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

Cc: davidgadiuta@gmail.com; Yingzi Xu



Auckland University of Technology Ethics Committee (AUTEC)

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AUT

TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

26 November 2020

Roger Marshall
Faculty of Business Economics and Law

Dear Roger

Re Ethics Application: **20/163 The Effectiveness of Attitude Inoculation Over Time**

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

Your ethics application has been approved for three years until 17 November 2023.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through <http://www.aut.ac.nz/research/researchethics>

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: david@gadnyx.com; [Yingzi Xu](#)

APPENDIX TWO – PRELIMINARY SURVEY QUESTION TESTING 1

WEAK ARGUMENT (EXPERIMENT 1, 2 AND 3)

Please imagine yourself in the following scenario and give your opinion on the message by answering the questions following.

As someone who smokes and is concerned for their dental hygiene, consider that for several years, you have been using a toothpaste brand especially for smokers named “Crown.” This specially formulated toothpaste aids you in countering the negative tooth discoloring effects 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.

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 mentioned that they have been making smokers’ toothpaste for a long time, unlike newer market entries. Crown hopes you continue to enjoy using their toothpaste.

Please give your opinion of the message presented in the scenario by answering the following questions on a scale from 1-5, where **1 = strongly disagree** and **5 = strongly agree**.

If this were me, I would certainly stay with Crown.

1	2	3	4	5
---	---	---	---	---

I absolutely would not change my toothpaste.

1	2	3	4	5
---	---	---	---	---

Selecting Crown is the best choice by far.

1	2	3	4	5
---	---	---	---	---

The argument used in the final paragraph of the passage is very strong.

1	2	3	4	5
---	---	---	---	---

The argument presented in the last paragraph of the scenario is very powerful.

1	2	3	4	5
---	---	---	---	---

I feel the argument used in the last paragraph is very robust.

1	2	3	4	5
---	---	---	---	---

The scenario presents a very potent argument to remain loyal to Crown.

1	2	3	4	5
---	---	---	---	---

STRONG ARGUMENT (EXPERIMENT 1, 2 AND 3)

Please imagine yourself in the following scenario and give your opinion on the message by answering the questions following.

As someone who smokes and is concerned for their dental hygiene, consider that for several years, you have been using a toothpaste brand especially for smokers named "Crown." This specially formulated toothpaste aids you in countering the negative tooth discoloring effects 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.

(Used Version 'Stronger argument')

As you are now considering the decision of which brand to purchase, you remember seeing advertising from Crown, your regular smoker's toothpaste. The advert states that Royal cannot compete with Crown's long experience and the proven safety and less abrasive effectiveness of Crown's treatment. Crown is confident their smoker's toothpaste is still the best on the market.

(Unused version 'Strong 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 warns Royal only achieves quick results by use of a dangerous chemical that causes long term tooth decay, achieving only temporary cosmetic effects. Crown advises you to stick with the brand you know and trust.

Please give your opinion of the message presented in the scenario by answering the following questions on a scale from 1-5, where **1 = strongly disagree** and **5 = strongly agree**.

If this were me, I would certainly stay with Crown.

1	2	3	4	5
---	---	---	---	---

I absolutely would not change my toothpaste.

1	2	3	4	5
---	---	---	---	---

Selecting Crown is the best choice by far.

1	2	3	4	5
---	---	---	---	---

The argument used in the final paragraph of the passage is very strong.

1	2	3	4	5
---	---	---	---	---

The argument presented in the last paragraph of the scenario is very powerful.

1	2	3	4	5
---	---	---	---	---

I feel the argument used in the last paragraph is very robust.

1	2	3	4	5
---	---	---	---	---

The scenario presents a very potent argument to remain loyal to Crown

1	2	3	4	5
---	---	---	---	---

APPENDIX THREE – PRELIMINARY SURVEY QUESTION TESTING 2

WEAK ARGUMENT (EXPERIMENT 4 AND 5)

Please imagine yourself in the following scenario and, after reading it, give your opinion by answering the few following questions.

You are nearing completing your degree, and you currently have no employment prospect.

After a quick online search, you decide to sign up with the job placement company

WorkWise. While out in town a few days later, you notice a billboard advert from a different job placement company, **SkillScout**.

The billboard claims that **SkillScout** has a 96% graduate placement rate, a placement rate higher than any other company! **SkillScout** also claims they will find you work faster than any other recruitment company.

A billboard advertisement for SkillScout. The background is dark blue. At the top left is the SkillScout logo, which features a magnifying glass icon over a star. Below the logo, the text '96%' is written in large white font, followed by 'GRADUATE PLACEMENT RATE!' in pink. Below this, a white box contains the text 'The industry's highest graduate placement rate.' In the center, there is a photograph of three young adults (two women and one man) sitting at a table, looking at a laptop. To the right of the photo, there are several colorful geometric shapes (triangles and squares) in shades of orange, purple, green, and blue. At the bottom left, a white box contains the text 'Don't waste your time with other job placement companies. When you sign up with us, you can rest easy knowing SkillScout will find you a job faster than anyone else!'. At the bottom right, there is a white box with the text 'Start working today. Sign up with SkillScout now!' followed by the phone number '0800 754 5587' and the website 'skillscout.co.nz'.

A little later, you notice another billboard, this time from the company you signed up with, **WorkWise**. WorkWise's billboard challenges the claims of SkillScout, stating that while other placement agencies may have higher placement rates and even faster placement times, WorkWise is more reputable and the better choice in finding work relevant to your degree!



WorkWise 
 workwise.co.nz ■ 0800 967 5993

The better choice in finding relevant work.

*Other placement agencies may have higher placement rates, and even faster placement times, but **WorkWise is more reputable** and the better choice in finding work relevant to your degree.*

Please give your opinion about the message presented by WorkWise in the scenario (“While other placement agencies may have higher placement rates and even faster placement times, WorkWise is more reputable and the better choice in finding work relevant to your degree.”) by agreeing or disagreeing with the following questions using this scale:

Disagree Strongly

Agree strongly

1 2 3 4 5 6 7

1 The argument presented by WorkWise is powerful.

2 The argument that WorkWise used is a bit scary.

3 The argument that WorkWise used is intimidating

☐

4 The argument used by WorkWise to counter the claim of the rival brand SkillScout is strong.

☐

5 The argument that WorkWise used is worrying.

☐

6 The argument used by WorkWise to counter SkillScout's advert is very firm.

☐

Thanks for your help!

STRONG ARGUMENT (EXPERIMENT 4 AND 5)

Please imagine yourself in the following scenario and, after reading it, give your opinion by answering the few following questions.

You are nearing completing your degree, and you currently have no employment prospect.

After a quick online search, you decide to sign up with the job placement company

WorkWise. While out in town a few days later, you notice a billboard advert from a different job placement company, **SkillScout**.

The billboard claims that **SkillScout** has a 96% graduate placement rate, a placement rate higher than any other company! **SkillScout** also claims they will find you work faster than any other recruitment company.

A billboard advertisement for SkillScout. The background is dark blue. At the top left is the SkillScout logo, which features a magnifying glass icon over a star and the text 'SkillScout' in a white serif font. Below the logo, the text '96%' is written in large white font, followed by 'GRADUATE PLACEMENT RATE!' in a smaller, pink, all-caps sans-serif font. Underneath this, a white-bordered box contains the text 'The industry's highest graduate placement rate.' in a white sans-serif font. Further down, another white-bordered box contains the text 'Don't waste your time with other job placement companies. When you sign up with us, you can rest easy knowing SkillScout will find you a job faster than anyone else!' in a white sans-serif font. On the right side of the billboard, there is a photograph of three young adults (two women and one man) sitting at a table, looking at a laptop. Overlaid on the right side of the billboard are several large, colorful, stylized arrows pointing in various directions. At the bottom right, there is a white-bordered box containing the text 'Start working today. Sign up with SkillScout now!' in a white sans-serif font, followed by the phone number '0800 754 5587' in a large, bold, black sans-serif font, and the website 'skillscout.co.nz' in a smaller, pink, sans-serif font.

SkillScout

96% GRADUATE PLACEMENT RATE!

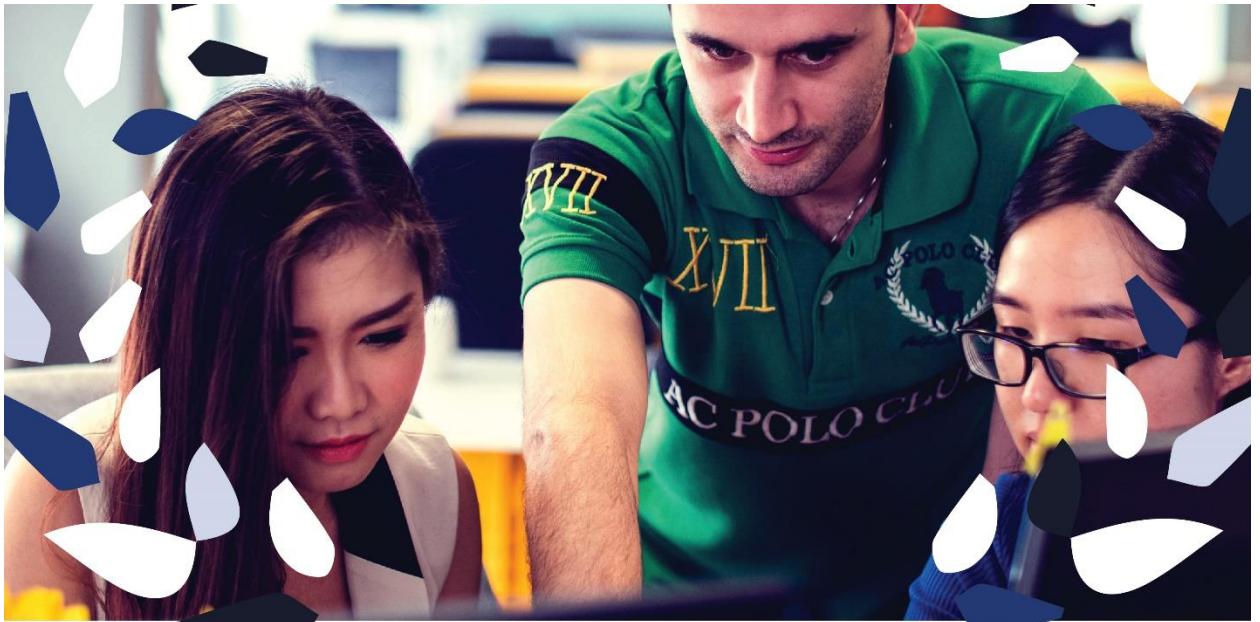
The industry's highest graduate placement rate.

Don't waste your time with other job placement companies. When you sign up with us, you can rest easy knowing SkillScout will find you a job faster than anyone else!

Start working today.
Sign up with SkillScout now!

0800 754 5587
skillscout.co.nz

A little later, you notice another billboard, this time from the company you signed up with, **WorkWise**. Workwise's billboard challenges the claims of SkillScout, stating that while other placement agencies may have higher placement rates and even faster placement times, WorkWise is still superior. WorkWise states that most jobs their competitors place graduates into are of poor quality! They have low pay and long hours with long commuting. If you want to find a great job relevant to your degree, you should always stick with WorkWise.



WorkWise 
workwise.co.nz ■ 0800 967 5993

The superior choice in finding relevant work.

*Other placement agencies may have higher placement rates, and even faster placement times, but **WorkWise is still superior**. Most jobs that our competitors place graduates into are of poor quality. They have low pay and long hours with long commuting. If you want to find a great job **relevant to your degree**, you should always stick with WorkWise.*

Please give your opinion about the message presented by WorkWise in the scenario (“While other placement agencies may have higher placement rates and even faster placement times, WorkWise is still superior. Most jobs that our competitors place graduates into are of poor quality! They have low pay and long hours with long commuting. If you want to find a great job relevant to your degree, you should always stick with WorkWise.”) by agreeing or disagreeing with the following questions using this scale:

Disagree Strongly

Agree strongly

1 2 3 4 5 6 7

1

The argument presented by WorkWise is powerful.

2 The argument that WorkWise used is a bit scary.

☐

3 The argument that WorkWise used is intimidating

☐

4 The argument used by WorkWise to counter the claim of the rival brand SkillScout is strong.

☐

5 The argument that WorkWise used is worrying.

☐

6 The argument used by WorkWise to counter SkillScout's advert is very firm.

☐

Thanks for your help!

APPENDIX FOUR – PARTICIPANT INFORMATION SHEET (EXPERIMENT 1,2 AND 3)

Date Information Sheet Produced:

07/08/2018

Project Title

Smokers' attitudes toward dental care.

An Invitation

My name is David Gadiuta and I am conducting this research as part of my Doctor of Philosophy (Business) 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 PhD 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 someone who smokes at least one cigarette per week 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.

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 a series of questions. A follow up will later take place, two to six weeks apart. 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 PhD 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 20 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, davidgadiuta@gmail.com

Project Supervisor Contact Details:

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

APPENDIX FIVE – SURVEY QUESTIONNAIRE (EXPERIMENT 1,2 AND 3)

Demographic / Qualifier questions – First sitting only

1. Have you smoked a cigarette in the last 4 weeks?
 - a. Yes
 - b. No

2. What is your gender?
 - a. Male
 - b. Female

3. What is your age group?
 - a. 18-39
 - b. 40 -59
 - c. 60+

4. What is your combined household income?
 - a. Under 59,999
 - b. 60,000 to 99,999
 - c. Over 100,000

5. Which best describes your current relationship status?
 - a. Single / Never married
 - b. Married / Long-term partner / Widowed
 - c. Divorced / Separated

6. What is the highest level of education you have completed?
 - a. No formal education
 - b. High School / GED
 - c. Diploma / Apprenticeship
 - d. College Degree or Higher

7. On average, how would you describe your smoking frequency?
 - a. I only smoke socially / occasionally
 - b. 1-4 Cigarettes per day
 - c. Several cigarettes per day, but no more than a pack
 - d. A pack of cigarettes or more per day

Survey Questions & Scenarios:

Study overview

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

Please allow yourself to become immersed into the scenario presented. The survey that will follow 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. Through answering the questions truthfully and to the best of your ability, you are contributing toward furthering our understanding of attitude. The results will aid in furthering research efforts in general social sciences, business and philosophy fields concerned with the

Base scenario

For the purpose of our experiment, please consider yourself in the following scenario. As someone who smokes and is concerned for their dental hygiene, consider that for several years, you have been using a toothpaste brand especially for smokers named "Crown." This specially formulated toothpaste aids you in countering the negative tooth discoloring effects 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 warns Royal only achieves quick results by use of a dangerous chemical that causes long term tooth decay, achieving only temporary cosmetic effects. Crown advises you to stick with the brand you know and trust.

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 mentioned that they have been making smokers' toothpaste for a long time, unlike newer market entries. Crown hopes you continue to enjoy using their toothpaste.

Control group version:

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

Survey Questions:

The participants will then be asked to answer a series of questions, in a mixed order (separated here for convenience). Some of the questions are designed to consider the formative power of cognitive decision processes, emotional processes and finally assessment of the likelihood of purchase. The questions will be answered with a 7 point Likert scale, where 1 is to strongly disagree and 7 is to strongly agree.

Questions: *(These are to be 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 use a new toothpaste.

1	2	3	4	5	6	7

Despite giving serious consideration to the claims of Royal, I will stick with Crown.

1	2	3	4	5	6	7

I think Crown brand toothpaste still offers better value than the new Royal brand toothpaste.

1	2	3	4	5	6	7

Emotional questions:

The new brand Royal, seems like a bland choice next to Crown.

1	2	3	4	5	6	7

I like Crown, my current and effective smokers tooth paste.

1	2	3	4	5	6	7

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

1	2	3	4	5	6	7

Purchase likelihood questions:

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

1	2	3	4	5	6	7

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

1	2	3	4	5	6	7

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

1	2	3	4	5	6	7

APPENDIX SIX – PARTICIPANT INFORMATION SHEET (EXPERIMENT 4 AND 5)

Date Information Sheet Produced:

07/08/2018

Project Title

Students attitudes toward job placement agencies.

An Invitation

My name is David Gadnyx and I am conducting this research as part of my Doctor of Philosophy (Business) 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 Gadnyx's PhD 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. Data collected in this research may also be used in teaching of experimental methods and statistical analysis.

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

Being a marketing student, enrolled in a class in experimental methods and statistical analysis.

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 job placement agency brands. You will be randomly designated to 1 of 4 groups that will be exposed to slight variations of a made-up scenario. Considering the scenario, you will then be asked to answer a series of questions. A follow up will later take place, if in the reminder group, 2 weeks later and again 3 weeks later. Those not in the reminder group will only receive a follow up 3 weeks later. The data will be collected and analyzed. Only group information will be kept, no personal information will be kept. Any identifier information will be permanently deleted after the data is collected and answers between the time periods are matched.

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?

While discomfort is extremely unlikely, you are free to opt-out of participating at any point.

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 Gadnyx to complete his thesis, leading to obtaining his PhD degree.

How will my privacy be protected?

A respondent ID will be generated, however this will at no point be linked to your identity or any identifier information. Each participant is asked to provide an identifier (pseudonym or number) that will allow the researcher to match their first and second survey response. This identifier is totally confidential to the student who provides it, so no identification of individual response is possible

What are the costs of participating in this research?

Spread over two to three sessions, up to 15 minutes of your time may be required.

What opportunity do I have to consider this invitation?

By viewing the study information on the Blackboard site.

How do I agree to participate in this research?

By completing the survey, you agree to participate in this research. You are free to opt-out at any time and in doing so, any information you have contributed will be permanently deleted.

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 AUTC, 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 Gadnyx, david@gadnyx.com

Project Supervisor Contact Details:

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

APPENDIX SEVEN – SURVEY QUESTIONNAIRE (EXPERIMENT 4 AND 5)

Scenario

Imagine you are just weeks away from completing your degree, and that you will be doing so with no employment prospects. After a quick online search, you decide to sign up with the job placement company **WorkWise**.

While out in town a few days later, you notice a billboard advert from a different job placement company, **SkillScout**.

The billboard claims that **SkillScout** has a 96% graduate placement rate, a placement rate higher than any other company! **SkillScout** also claims they will find you work faster than any other recruitment company.

A billboard advertisement for SkillScout. The background is dark blue. At the top left is the SkillScout logo, which features a magnifying glass icon over a star and the text 'SkillScout' in a white serif font. Below the logo, the text '96%' is written in large white font, followed by 'GRADUATE PLACEMENT RATE!' in a smaller, pink, all-caps sans-serif font. Underneath this, a white-bordered box contains the text 'The industry's highest graduate placement rate.' in a white sans-serif font. At the bottom left, another white-bordered box contains the text 'Don't waste your time with other job placement companies. When you sign up with us, you can rest easy knowing SkillScout will find you a job faster than anyone else!' in a white sans-serif font. On the right side of the billboard, there is a photograph of three young adults (two women and one man) sitting at a table, looking at a laptop. Overlaid on the right side of the billboard are several large, colorful, stylized arrows pointing in various directions. At the bottom right, there is a white-bordered box containing the text 'Start working today. Sign up with SkillScout now!' in a white sans-serif font, followed by the phone number '0800 754 5587' in a large, bold, black sans-serif font, and the website 'skillscout.co.nz' in a smaller, pink, sans-serif font.

SkillScout

96% GRADUATE PLACEMENT RATE!

The industry's highest graduate placement rate.

Don't waste your time with other job placement companies. When you sign up with us, you can rest easy knowing SkillScout will find you a job faster than anyone else!

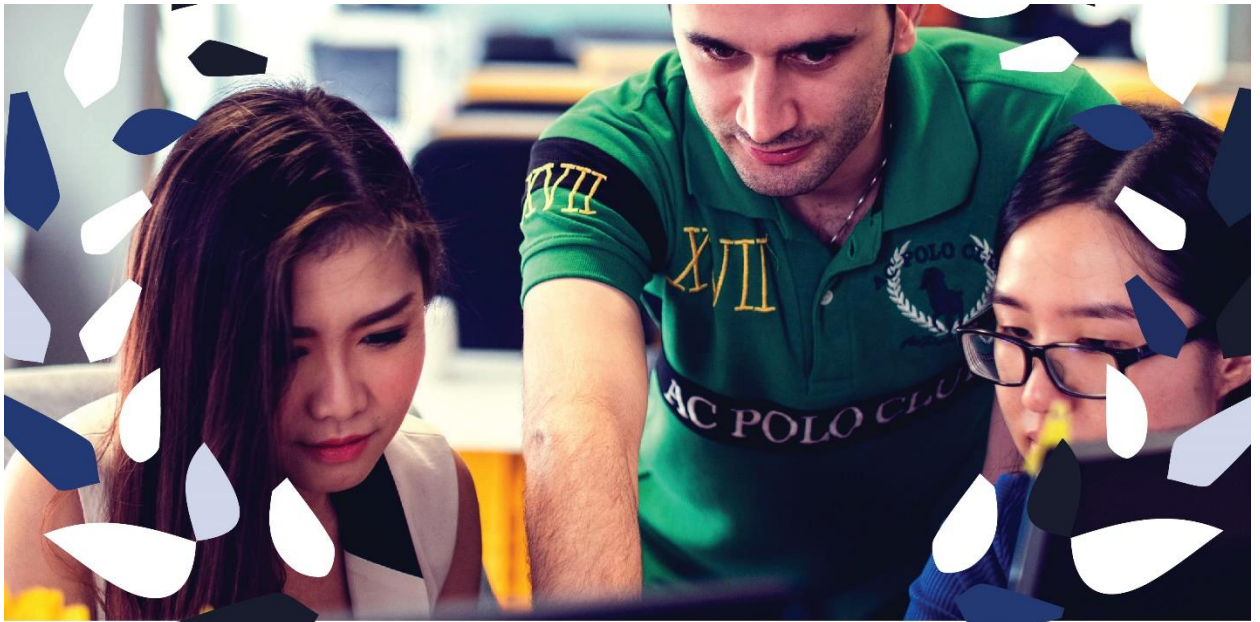
Start working today.
Sign up with SkillScout now!

0800 754 5587
skillscout.co.nz

A little later, you notice another billboard, this time from the company you signed up with, **WorkWise**.

Weak Argument Version:

WorkWise's billboard challenges the claims of SkillScout, stating that while other placement agencies may have higher placement rates and even faster placement times, WorkWise is more reputable and the better choice in finding work relevant to your degree!



Workwise 
workwise.co.nz ■ 0800 967 5993

The better choice in finding relevant work.

*Other placement agencies may have higher placement rates, and even faster placement times, but **WorkWise** is more reputable and the better choice in finding work relevant to your degree.*

Strong Argument Version:

Workwise's billboard challenges the claims of SkillScout, stating that while other placement agencies may have higher placement rates and even faster placement times, WorkWise is still superior. WorkWise states that most jobs their competitors place graduates into are of poor quality! They have low pay and long hours with long commuting. If you want to find a great job relevant to your degree, you should always stick with WorkWise.



WorkWise 
 workwise.co.nz ■ 0800 967 5993

The superior choice in finding relevant work.

*Other placement agencies may have higher placement rates, and even faster placement times, but **WorkWise is still superior**. Most jobs that our competitors place graduates into are of poor quality. They have low pay and long hours with long commuting. If you want to find a great job **relevant to your degree**, you should always stick with WorkWise.*

Measure A:

As both job placement companies work through exclusive contracts, you must pick between the two and now decide if you will stay with **WorkWise** or change to using **SkillScout**.

Booster (Experiment 5 only):

While out on a walk you notice the following billboard advert from WorkWise.



WorkWise
workwise.co.nz | 0800 967 5993

The better choice in tracking down work.

*Trust WorkWise to hunt for work **relevant to your degree!***

Measure B (Reconnect):

Imagine you are just weeks away from completing your degree, and that you will be doing so with no employment prospects. After a quick online search, you had decided to sign up with the job placement company **WorkWise**. While out in town, you notice a billboard advert from a different job placement company, **SkillScout**.

The billboard claims that **SkillScout** has a 96% graduate placement rate, a placement rate higher than any other company! **SkillScout** also claims they will find you work faster than any other recruitment company.

As both job placement companies work through exclusive contracts, you must pick between the two and now decide if you will stay with **WorkWise** or change to using **SkillScout**.

Survey Questions:

The participants will then be asked to answer a series of questions, in a mixed order (separated here for convenience). Some of the questions are designed to consider the formative power of cognitive decision processes, emotional processes and finally assessment of the likelihood of purchase. The questions will be answered with a 7 point Likert scale, where 1 is to strongly disagree and 7 is to strongly agree.

Questions: *(These are to be presented in mixed order)*

Please either agree or disagree with these statements

Cognitive questions:

Given WorkWise will find me a more relevant job to my qualifications, I have no reason to switch to the new recruitment company, SkillScout.

1	2	3	4	5	6	7

Despite considering the claims of fast job placement by SkillScout, I will stick with WorkWise.

1	2	3	4	5	6	7

I think WorkWise still offers me more than the new brand, SkillScout.

1	2	3	4	5	6	7

Emotional questions:

I feel WorkWise cares more about its clients, so I will not be switching to SkillScout.

1	2	3	4	5	6	7

I am happy with my first choice WorkWise and will commit to using their service.

1	2	3	4	5	6	7

I am uncomfortable with the idea of switching from WorkWise to the new brand, SkillScout.

1	2	3	4	5	6	7

Purchase likelihood questions:

I will stick with WorkWise, using their service to find a job.

1	2	3	4	5	6	7

I have no interest in signing up with SkillScout.

1	2	3	4	5	6	7

Despite SkillScout's offer I plan to keep using WorkWise.

1	2	3	4	5	6	7