MONASH University

Free Will and Hypnosis: Can hypnosis effect unintended behaviour?

Beau Growcott
Bachelor of Arts
Post-graduate Diploma (Psychology)
Masters of Psychology (Counselling) - Pending

A thesis submitted for the degree of Doctor of Philosophy at
Monash University in 2017
Faculty of Education

Copyright notice

Abstract

Free Will and Consciousness, and their relationships with Behaviour, are yet to be completely understood. There is no conclusive physiological evidence of free will, for example. Hypnosis is a psychological technique for investigation and intervention which has the reputation of counteracting free will, altering consciousness, and altering behaviour. Previous studies provide mixed and often contradictory evidence about the effect of hypnosis on free will and behaviour. Aversive-design studies are considered unethical and did not measure will so much as fear and safety, but provided evidence that hypnosis could counteract will. Counterintuitive-design studies are instructional and do not measure free will either, but provided evidence that hypnosis could not counteract free will. The present study tested whether hypnosis could make participants (n = 37) change their behaviour (smoking) against their 'will'. Participants who did not intend to quit smoking (n = 11) significantly reduced their reported daily and weekly cigarette consumption in the 2 to 3 months following a simple, 2-session hypnosis intervention for smoking, even though their reported intention did not change (F (1,35) = 22.16, p < .001). Participants who did intend to quit (n = 26) also significantly reduced their smoking, although the difference between groups was not significant (F (1,35) = .310, p = .581). Results from the study challenged conventional explanations of free will and existing theories of hypnosis, both of which have been difficult to theorise. Mirror intentions are proposed as an alternative explanation of free will and behaviour. Mirror intentions are concurrent intentions that directly oppose primary intentions, meaning that for every (primary) intention, there is a mirror intention to behave in an opposite or counteractive way. This explanation is supported by evidence from previous research on behaviour hedging: when participants would

partly perform and fail hypnotic suggestions. In the present study participants typically reduced without completely quitting smoking after hypnosis, thus hedging their response. Qualitative data analyses provided insight into the phenomenon, with participants describing the intention to quit and the intention to continue smoking.

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signature: ……

Print Name: ……..

Date: ……..

Acknowledgements

I would like to thank Dr Felicity Allen and Dr Philip Greenway for their patient and persistent guidance throughout the duration of this lengthy project. I could not and would not have completed this without their enduring support.

I would also like to thank Aaron Montague for his help, without which, this project would not be here.

I am very grateful for the help of Robert Drago for his help in editing and finalizing this document, and to Associate Professor Anne Bardoel for introducing me to him.

Finally, thank you to my friends and family, especially those who read my drafts, there are too many of you to name. Post-graduate psychology has an ironically negative effect on your mental health: thank you for helping me maintain mine.

Table of Contents

Figures

Tables

Chapter 1: Thesis Overview

Some (participants) become so deeply hypnotized that they are unable to resist even when they try their best to do so. I want to see if you can become that hypnotized today, so deeply hypnotized that you won't be able to resist.

(Spanos, Cobb, & Gorassini, 1985, p. 285)

Despite trying to resist, 85% of participants obeyed suggestions for head and arm movements when given this suggestion during hypnosis. Some research participants have even been offered $100 to resist a single hypnotic suggestion, and not been able to (Levitt, Baker, & Fish, 1990). Although researchers still argue that people "retain the ability to control their behaviour during hypnosis" (Lynn & Kirsch, 2004, p. 33), results like these challenge that idea, and the validity of a larger, more conventional, intuitive, and common idea: free will.

1.1 Background

Free will is taken for granted. It is the byproduct of a simple and simplistic understanding about how psychology's two fundamental domains interact: the mind *causes* behaviour. Libet led research during the 1980s that challenged free will (Libet, 1985; Libet, Gleason, Wright Jr., & Pearl, 1983; Libet, Wright Jr., & Gleason, 1982). He and his colleagues found that during decision-making, neurophysiological activity preceded conscious awareness of the decision. This invalidated the mind *causing* behaviour, because behaviour was preceding mind or *consciousness*. In addition, Wegner conducted research that suggested the mind could not consciously control

itself. When instructed not to think of white bears for example, the mind becomes occupied with more white bears than it would have if they had never been mentioned (Wegner, Schneider, Carter III, & White, 1987)

In defense of free will, Pacherie argued that it is preserved in intention: a mental state that results in an action (Pacherie, 2006, 2013; Pacherie & Haggard, 2010). She argued that Libet made a mistake about the temporal frame of free will. Libet measured the difference between neurophysiological activity and consciousness in milliseconds, but according to Pacherie, free will acts over seconds, minutes, and hours. If I want to eat a sandwich, I have to walk to the shops, buy ingredients, walk home, and make the sandwich. The intention to eat a sandwich is there all along, well before I get to eat my sandwich. She champions what might be called free intention, rather than free will.

While topics like free will and intention are typically left to philosophers, understanding the mechanism that executes behaviour could help psychologists to more effectively understand and change behaviour. Few theorists have compellingly integrated free will or intention into their theories of behaviour and behaviour change. Ajzen, developed a theory of behaviour with intention at its centre (Ajzen, 1985, 1991). When his theory was used to develop behaviour change interventions however, the evidence did not support his theory (Sniehotta, 2009; Sniehotta, Presseau, & Araujo-Soares, 2014).

Other prevailing explanations of behaviour and behaviour change do not account well for intention, free will, or mind-behaviour causation. The trans-theoretical model (TTM) for example, is founded on several therapeutic techniques, as well as a well-researched sample of self-initiated change (Di Clemente & Prochaska, 1982; Prochaska, 1979a; Prochaska & Di Clemente, 1982, 1983). It does not reference intention or free will directly, nor has it been shown to improve the efficacy of behavioural change

(Aveyard, Massey, Parsons, Manaseki, & Griffin, 2009; Cahill, Lancaster, & Green, 2010; West, 2005). Ultimately, there is deep ambiguity about free will, consciousness, behaviour, and behaviour change: none are well understood.

One phenomenon at the nexus of these ideas is hypnosis. Hypnosis is complicated. Like the mind-behaviour relationship, like free will, and like consciousness, hypnosis is not yet well understood, and unlikely will be until each of the others are. On the topic of mind-behaviour causation and free will, hypnosis has the reputation of being able to make people act against their will (Hilgard, 1963; Rowland, 1939). On the topic of consciousness, there is an ongoing debate about whether hypnosis alters physical consciousness (Baghdadi & Nasrabadi, 2009; Oakley, 2012), or is a socially-produced, socially-derived phenomenon (Kirsch, 2001; Orne, 1966). On the topic of behaviour change, its effectiveness is inconsistent (Barber, 2001; Borland, 2011; Carmody et al., 2008; Green & Lynn, 2000; Mendoza & Capafons, 2009).

Focusing on the role of intention in hypnosis specifically, research has taken two designs: aversive and counter-suggestion. In aversive designs, researchers recruit participants to perform inherently undesirable or unpleasant acts during hypnosis. Touching a snake (Rowland, 1939), or burning a bible (Levitt et al., 1975), for example. Not only are these studies unsafe and unethical, they do not accurately represent free will. The actions are about fear and safety, not freedom or choice. In addition to this, unhypnotised 'simulators' typically perform any aversive act a hypnotized person will (Orne, 1972), suggesting that these designs do not truly measure hypnosis anyway.

In counter-suggestion designs, researchers instruct participants to resist a suggestion once they are hypnotized. This could be confusing for participants who are sometimes hypnotized, then de-hypnotized, then instructed, then re-hypnotized (Hilgard, 1963; Levitt et al., 1990). More importantly, instruction does not accurately

represent free will. It is argued here that instruction is the opposite of free will and that the behaviours being induced (typically head nodding and arm raising) are too simple to reflect actual free intention (Hilgard, 1963). In addition to these concerns, the results from both designs are unreliable. There are always a group of participants (albeit typically small) who abide suggestions 'against their will' (Hilgard, 1963; Levitt et al., 1990; Rowland, 1939).

1.2 Research Problem, Research Proposition, & Contributions

In broad terms, the study and practice of psychology would benefit from a better understanding of free will, consciousness, and behaviour, and how each of these interact. *How do the mind and behaviour relate? How do free will and consciousness interact? And what can hypnosis demonstrate about these things?* Specifically, it would also be useful and beneficial to understand what happens to control during hypnosis. This might improve the uptake of hypnosis as an intervention technique, as well as ensuring its ethical practise. *Can hypnosis make someone do something they do not want to do?*

Addressing these questions required a new experimental design that addressed the shortcomings of previous designs. Such an experimental design would need to involve a free behaviour that was uninstructed and self-selecting, i.e., which existed outside of the experimental context. The behaviour would also need to be complex and more representative of human behaviour than head nodding or arm raising for example. The experiment would also need to be ethical, such that whatever the behavioural outcome, the participants would not be physically or emotionally harmed.

The present study resolved these issues by testing the ability of hypnosis to alter the smoking behaviour of people who do not *intend* to quit smoking. These participants

did not intend to quit smoking, but were prepared to undergo a hypnotic intervention to change their smoking behaviour.

Cigarette smoking is a voluntary, uninstructed act. It is not illegal or imminently dangerous, although it has been prohibited in some areas of the public domain, and its long-term adverse health effects are well known. Smoking is a complex behaviour, involving motivations and several other cognitive functions and systems (stress, pleasure, rationale etc.). It provides a more accurate representation of a complex free will. Hypnosis for smoking cessation involves a post-hypnotic suggestion or suggestions, unlike other experimental hypnosis that has focused on suggestions *during* hypnosis. It is also more accurately reflects the practice of hypnosis than existing experiments have.

Several research questions were constructed to focus the investigation. Specifically, will participants who do not intend to quit smoking, quit or reduce their cigarette consumption after hypnosis? It was hypothesized that they would because there is evidence that some participants always abide suggestions even when they are instructed not to or ought not to for safety reasons. It is also argued that free will is a less significant factor than typically credited for. Secondly, will participants with the intention to cease or reduce smoking experience a greater change in smoking behaviour after hypnosis than participants without the intention? It was hypothesized that they would since intention and motivation are still considered factors in the efficacy of hypnosis, but not the only factors. Thirdly, will a measure of intention predict change in smoking behaviour after hypnosis? It was hypothesized that it would since the effects of intention and motivation on behaviour are considered to be consistent. Fourthly, will participants experience a change in intention after hypnosis? It was hypothesized that they would not since hypnosis is believed to act via an alteration of consciousness

whereas intention is a function of waking consciousness. Finally, will a measure of beliefs about smoking predict smoking cessation? It was hypothesized that they would not since beliefs too are a function of waking consciousness, unlike hypnosis.

In order to test these hypotheses, intention was measured by Likert-scale survey, and cigarette consumption was self-reported, as well as measured by a breath sample of carbon monoxide.

Hypnotizability was not measured. This was a significant omission since hypnotisability is a fundamental feature of most hypnosis theories. Hypnotisability was omitted for theoretical reasons, since it is considered that free will does not exist in degrees: individuals either have free will or they do not. If this is the case, it should not matter whether someone is more or less hypnotisable. Measuring hypnotisability, and potentially selecting participants by their scores, could result in measuring the wrong variable. In addition to this there is evidence that hypnotisability does not correlate with hypnosis efficacy (Green & Lynn, 2000) as well as evidence that hypnotisability can be experimentally altered (Cangas Diaz, Luciano, Perez Alvarez, Ruiz-Sanchez, & Eisenbeck, 2015). Such evidence suggests that not only is hypnotisability unnecessary for successful hypnotic interventions, but that it may potentially be an artefact of investigation techniques. The topic of addiction as such will also not be addressed.

Answering the research questions provided contributions that will be presented in Chapter 6. In summary, however, this research made several contributions, including a new experimental design for the role of free will or *intention* in hypnosis, improved 'synthesis' of free will or *free behaviour* in an experimental context. Also importantly, the present research has contributed to the reconsideration and re-construction of the idea of 'free will' in psychology, and how it might be examined in the future.

1.3 Justification of the research

There are several reasons why this research is justified. Broadly speaking, it is important that the topic of free will continues to be explored, both for the purpose of enhancing knowledge in general, and to benefit the practice of psychology specifically (Kihlstrom, 2013; Oakley & Halligan, 2013). Understanding free will in general could influence something as big and ubiquitous as the law for example, or it could help improve psychological interventions, such as those which harness intention (Gollwitzer, 1999) Existing theories of mind and behaviour have not managed to accurately account for the idea of free will. An accurate account of free will could assist in resolving a several societal problems pertaining to undesirable, anti-social, and illegal behaviour, as well as unhealthy behaviour.

Specifically, the present research addresses hypnosis as a psycho-therapeutic technique. If free will is manipulable by hypnosis, psychological interventions could be dramatically improved by its inclusion, and would justify significant additional research in the field.

There is also evidence that hypnosis can be practiced unethically (Hawkins, 1993) and has been implicated in transgressions of the law (Collaery, 1999; Judd, Burrows, & Bartholemew, 1986; Perry, 1979; Wagstaff, 2008). Although the psychological practice of hypnosis is subject to the same code of ethics as any other psychological intervention (Society, 2007), understanding the role of free will during hypnosis could help to improve the ethical and legal practice of hypnosis. A thorough exploration of hypnosis and the law can be found in (Barnier, McConkey, & Sheehan, 2010). It is also important for the expanding interest in 'consciousness-altering' practices like mindfulness and meditation generally, and the burgeoning interest in hypnosis specifically (D. Spiegel, 2013).

1.4 Methodology

Participants (n = 37) who both did and did not want to quit smoking were recruited using primarily facebook, and provided baseline measures of cigarette smoking, intention (Stages of Change Readiness And Treatment Eagerness Survey – SOCRATES), smoking-related beliefs (Self-Exempting Beliefs Questionnaire – SEB-Q), and carbon-monoxide in breath, before undergoing 2 sessions of hypnosis. Participants were followed up between 2 and 3 months later, for re-survey regarding their cigarette smoking, intention, and smoking-related beliefs. They also provided breath samples, and completed a 10-minute interview about the study for qualitative analysis.

In regards to the hypnosis itself, two hypnosis scripts were developed to target clients without the intention to quit smoking. The first script targeted ambivalent and resistant smokers by expressing permission and control over smoking. For example, the first script included statements such as " you are your own master", "when the time is right for you", and "you are going to decide when you become a non-smoker", the obvious subtext being a decision to become a non-smoker. The second script involved a metaphor that divided the individual into parts, namely to isolate the part of the individual that smokes/'chooses' smoking, and re-integrate that part with the other parts of the self that, by implication, does not smoke and does not choose to smoke.

1. Participants who reported no intention to cease or reduce their smoking behaviour were sought and recruited to the study. Participants who reported the intention to cease or reduce their smoking behaviour were also sought and recruited to the study.

2. Participants completed:

a. a basic survey about their age, gender, and smoking behavior,
b. A questionnaire about their attitudes towards smoking (SEB-Q),
c. The SOCRATE Survey, and
d. Smokerlyzer exhalation.

3. Participants underwent the first session of hypnosis, lasting approximately 90 minutes.
4. No more than 1 week later, participants completed the second session of hypnosis, lasting approximately 70 minutes.
5. Approximately 2 to 3 months afterward, participants completed the surveys again, as well as a short interview.
6. Some participants (n=20) were also followed up a third time, after approximately 6 months.

1.5 Thesis Outline

Chapter 1 provides an overview of the entire thesis. It introduces the research reviewed in chapters 2 and 3, before justifying the current research. The entire thesis is also outlined and then provides definitions, limitations, delimitations, and a conclusion.

Chapter 2 introduces and explores the mind-behaviour relationship and its elements: free will, consciousness, and behaviour. This includes the work of Libet (Libet, 1985; Libet et al., 1983), which is followed by an exploration of Wegner's work on consciousness (Wegner, 1989, 2002; Wegner et al., 1987). It contrasts their positions with the work of Pacherie on intention (Pacherie, 2013; Pacherie & Haggard, 2010). Finally, chapter 2 explores the behavioural aspects on free will and intention using Ajzen's theory of planned behaviour (Ajzen, 1985, 2011), and Prochaska and Di Clemente's Transtheoretical Model of behaviour change (Prochaska, 1979b; Prochaska

& Di Clemente, 1982). These explorations highlight ambiguity in the mind-behaviour relationship.

Chapter 3 develops the mind-behaviour themes explored in chapter 2 through the lens of hypnosis: consciousness, free will, intention, and behaviour. It narrows focus to the research problem: hypnosis and the role of free will or *intention*. The chapter then introduces the research problem and proposition specifically, before exploring the contributions this thesis makes. This involves the long-standing state vs non-state disagreement, research into the role of free will and control in hypnosis, and the use of hypnosis as a technique for behavioural change. Chapter 3 focuses on the topic of free will (or control) in hypnosis and identifies several short-comings in the existing research, namely that the findings can be ambiguous, and that the experimental designs can be unsafe, confusing, and not isolate/synthesize free will in a scientifically valid manner.

Chapter 4 outlines a new research design that can address these shortcomings, by recruiting participants who smoke but do (i.e., control group) or do not (i.e., experimental group) intend to quit smoking, and are prepared have a hypnotherapist try and change their smoking behaviour. Chapter 5 details the results: participants who did not intend to cease or reduce their smoking did significantly reduce their smoking, for example. Chapter 5 also explores qualitative data derived from short interviews in follow up sessions with participants. Chapter 6 summarizes and expands the results reported in chapter 5. It also includes exploration of the significance of the findings for existing positions on free will and hypnosis.

1.6 Definitions

Definitions adopted by researchers are often not uniform, so key and controversial terms are defined to establish positions taken in the present thesis. The

controversial nature of some topics and terms discussed in this thesis means that important definitions are the subject of discussion themselves. The term hypnosis for example, is controversial because its nature is unclear (Barrett, 2015), and its definition is a topic of investigation in this thesis. Hypnosis can refer to both a theoretical state of mind (i.e., he/she is hypnotized), as well as a psychological technique (i.e., to hypnotize someone), for example (Barabasz & Barabasz, 2015; Barrett, 2015; Lynn et al., 2015).

The term consciousness is also controversial (Chalmers, 1996; Hohwy, 2009; Koch, 2004; Sandberg, Timmermans, Overgaard, & Cleeremans, 2010). Consciousness might refer to both the contents of the mind in a phenomenological sense, and the evidence of wakefulness (i.e. conscious versus unconscious) in a physiological sense. These terms will both be defined and discussed in greater detail in chapters two and three.

Free will is also a complex term. In this thesis it has been defined as "the ability to choose how to act" and "the ability to make choices that are not controlled by fate or [a] God" ("free will," 2016). However it might also be defined as an action for which only an individual is responsible. The present thesis has adopted the former definition.

Another complex term is intention. In this thesis, the definition of intention has been adopted from Pacherie and Haggard (2010): "a mental state … [which is] accessible to consciousness [and bears] some relation to subsequent action" (p. 70).

1.7 Delimitations and Limitations

It is important to acknowledge the boundaries and limits of research. Provided below are the delimitations (in control of the researcher) and limitations (not in control of researcher) of the present research.

1.7.1 Delimitations

In the present research, only two sessions of hypnosis were conducted. Previous research suggests that several sessions might be required to achieve lasting behavioural change (Borland, 2011; Dell, 2010; Dong, McRobbie, Walker, Mehta, & Stead, 2010; Mendoza & Capafons, 2009; D. Spiegel, 2013). Another significant delimitation was the exclusion hypnotizability scales. Hypnotisability was not assessed for theoretical reasons discussed above, however it is acknowledged that hypnotisability represents a significant feature of most hypnosis-related research and theory (Koep, 2012; Oakley, Deeley, & Halligan, 2007).

The present research was also limited in its consideration of addiction and addiction theory, even though this topic might be deemed closely related to the topic of free will.

1.7.2 Limitations

The present research was limited to a small sample (n=37), and participants were typically of a similar age (30-49 years of age). This is partly because participants with no intention were difficult to recruit since, by definition, they were not interested in achieving the intervention goals. Participants who did not want to quit typically arrived in the study by referral: people who knew people that did not want to quit. If the study were re-conducted, participants might be targeted with a strategy that considered, for example, “do you know someone who does not want to quit smoking?”

Finally, there is evidence to suggest that conducting an experiment can have its own unique influence on behaviour, and there is evidence that hypnosis might be a relevant phenomenon. For example Orne (1959/2006) argued that the process of participating in an experiment and adopting the role of participant could result in its own effect, thus making it difficult to know whether to attribute effects to the

circumstances of the experiment or the intervention itself. Conducting any experimental hypnosis is subject to this limitation.

1.8 Conclusion

This chapter prepared the foundations of this dissertation. It contextualized the research problem in the broader context of the mind-behaviour relationship and the sub-themes of free will, consciousness, and behaviour. It outlined these themes in the context of hypnosis, focusing on the role of free will in hypnosis. It also discussed the shortcomings of existing research on this topic, and a possible method for addressing these shortcomings. Finally, it provided an outline of the entire thesis, important definitions for understanding the work, and acknowledged the significant delimitations and limitations of the research.

Chapter 2: The Mind-Behaviour Relationship

As per the APA definition, the field of psychology has two primary domains: the mind and behaviour (VandenBos, 2015). Psychology, in its broadest sense, is always about understanding one or both of these domains, and how they relate. The relationship has typically been considered straightforward and linear: the mind causes behaviour. This idea has intuitive validity, and gives rise to the notion of free will: the ability to make choices and to determine one's own outcomes (Aarts & van den Bos, 2011, p. 532) in a way that is not determined by prior causes, fate, a god, or by anything other than our 'selves' ("free will," 2016). Free will is considered the property that overrides instinct to make independent, autonomous, rational choices, and determine thoughts and behaviours. According to some, it is what distinguishes humans from other creatures, and underpins the legal, medical, religious, and political systems of modern human society (Haggard & Libet, 2001).

The findings of Libet and his teams during the 1980s, however, caused a re-evaluation of free will and the relationship between mind and behaviour (Libet, 1985; Libet et al., 1983; Libet et al., 1982). The researchers compared the neural activity of participants making spontaneous and free decisions with their reported timing of these decisions. They discovered that neural activity preceded conscious awareness of the decision. In other words, the brain activity associated with a decision began before a 'conscious' choice was possible. Their findings suggested that the mind does not cause behaviour, and undermined the function of consciousness. The findings invited further research. This chapter will explore this research in greater detail, as well as other

research that suggests the mind-behaviour relationship does not involve linear causality.

This chapter will also explore alternative explanations of various findings which preserve the traditional understanding of the mind-behaviour relationship. Theorists have done so by including intention in the equation, and arguing that the mind does cause behaviour because it steers intention and intention causes behaviour (Pacherie, 2000, 2006, 2013; Pacherie & Haggard, 2010), giving rise to something more like 'free intention' rather than free will.

Finally, this chapter explores the practical aspects of the free will and mind-behaviour questions: psychological intervention. Ajzen (Ajzen, 1985, 1991) developed a theory of behaviour founded on intention, while Di Clemente and Prochaska (1982) explored autonomous behavioural change, a proxy for free will. Neither of their resulting theories accounted for behaviour change or free will especially well. These findings suggest that the field needs new research.

2.1 Free Will or Free Won't

Libet revolutionized the understanding of free will and the relationship between mind and behaviour. Before studying free will, however, he studied consciousness and perception. In one sequence of research, participants who had electrodes surgically inserted into their brains received electrical stimulation to determine the lowest level at which stimulation could be consciously experienced (Libet, 1965a; Libet et al., 1964). Libet and his colleagues later explored and compared the conscious experience of this stimulation, applied directly to the brain, with the conscious experience of regular, external stimulation (Libet, Wright Jr., Feinstein, & Pearl, 1979).

The results demonstrated that the brain could be stimulated and react without brain activity reaching levels of conscious awareness. Libet became an expert in the

(temporal) differences between neurological activity associated with sensory stimulation and the reported conscious experience of sensory stimulation, or in other words: the difference between the brain and the mind. Libet expressed the possibility that this difference might transcend free will as well. He wrote:

> We know that one can react to a sensory stimulus, for example, with reaction times as short as 0.05-0.1 sec. even when decisions are involved in making the responses. This could mean that such quick reactions, made in response to activation near the liminal level for conscious experience, would be made unconsciously… It is difficult to avoid taking a further step from this position and discussing its bearing on the problem of an individual making voluntary or "free" choices. (Libet, 1965b, p. 85)

Libet and his colleagues designed an experiment to test this idea. Three elements were necessary: a measure of neurological activity, a measure of conscious experience, and an instance of free will. He used Electro-Encephalography (EEG) to measure neurological activity. EEG uses multiple electrode sensors to measure the location and intensity of electrical activity on the scalp as an indicator for what is happening in the brain beneath it. To measure conscious experience, Libet and his colleagues designed a system that enabled participants to record when they became conscious of something. To do this, he placed in front of them a cathode ray screen on which a dot traced the shape of a circle. Participants told researchers where the dot was when an event occurred in their consciousness, from which an exact time of conscious occurrence could be calculated.

Finally, the study needed a “freely voluntary motor act” to study (Libet et al., 1982, p. 322). Guidelines were developed for the action:

> First, there should be no external control or cues to affect the occurrence or emergence of the voluntary act under study; i.e. it should be endogenous. Secondly, the [participant] should feel that he/she wanted to do it, on her/his own initiative, and feel he could control what is being done, when to do it or not to do it. (Libet, 1999, p. 47)

Choosing an action was complicated since, by defining the action, it became less than 'free' – an idea that will be discussed in greater detail in chapter 3. The researchers were more interested in the freedom of choosing when the motor act happened, and whether it happened or not, rather than what it was per se. The researchers chose an "abrupt flexion of the fingers and/or the wrist of the right hand" (1982, p. 324) for their free motor act. The action could be performed while neural activity was measured.

The resulting experiment involved seated participants, with EEG electrodes attached to their scalp, watching the cathode ray screen, and flexing the fingers or wrist of their right hand. Participants (n = 6) were instructed to maintain their gaze on the screen, and perform the quick abrupt flexion of the fingers or right hand when they felt like doing so. Each participant was allowed to choose the moment of flexion that felt most 'convenient' to him or her, but were instructed to perform that action the same way each time. Participants were also encouraged to be spontaneous, and "to let the urge to act appear on its own at any time without any pre-planning or concentration on when to act … [in order to] elicit voluntary acts that were freely capricious in origin" (p. 324). In this vein, they were not required to act – they could perform the flexion as many or as few times as they chose – this being precisely the point of the study: to isolate the neural activity of that intention, or the time they acted upon their free will. Participants were instructed to note the position of the dot on the cathode ray screen at

the time they first became conscious of their intention or urge to 'flex'. This moment, the first conscious moment of free will, was labelled *W* for wanting – wanting to move.

The researchers expected a gap between this *W* (i.e. conscious awareness of the urge) and the flex action itself, since it would take a moment for the conscious intention to travel from the brain to the muscles in the arm and hand. Expectations about the gap between the neural activity and the *W* were different, however. According to a conventional understanding of free will, the expected sequence of events might be

a) the *W* time (time of intention according to the clock dot)

   to either align precisely with, or slightly precede

b) the onset of neural activity

This way, the *W* (the conscious intention) would be the neural activity – they would be one and the same thing. A physical and a subjective measure of a deliberate conscious event would be in alignment. Or at worst, if *W* preceded neural activity, somehow the *W* would be causing the neural activity, perhaps in some kind of yet-to-be understood, epiphenomenal way that required further research.

Neither of these constructions were supported: the neural activity preceded the *W.* Brain activity suggesting a decision to flex began before the decision had even entered consciousness. It was a substantial gap too: neural activity was typically occurring between 100 and 200 milliseconds before the *W* marker, and in the order of 550 milliseconds before the flex action. Provided below are two diagrams representing the conventional understanding of free will, and the understanding of free will supported by Libet's work.

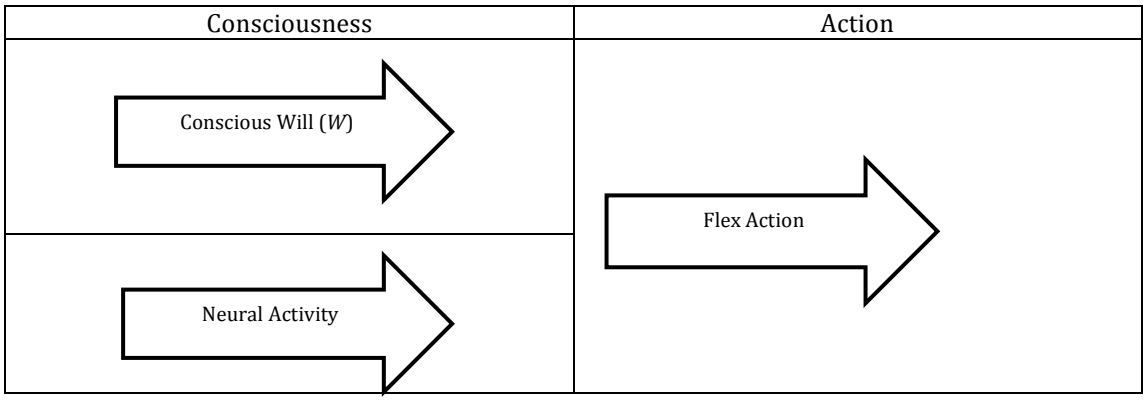

Figure 2.1. Conventional 'free will' causal understanding.

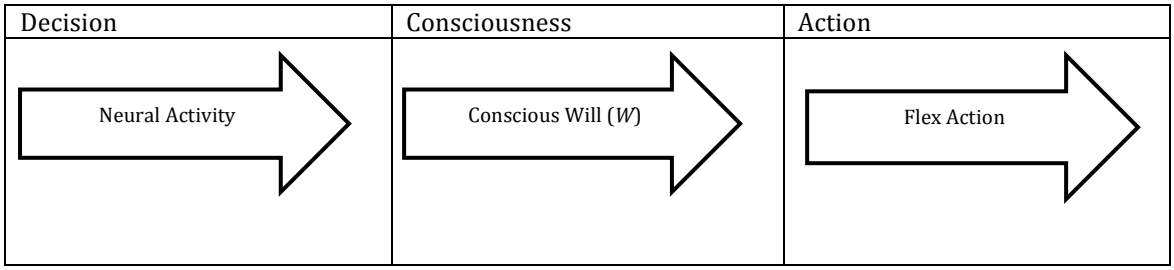

Figure 2.2. Libet's 'free will causal evidence. Adapted from Libet (1965).

Libet understood that decision-making was not free "unless one was aware of what one was doing and could consciously exert some control over it" (Libet, 1965b, p. 85). The study results suggested that neural activity for decisions was pre-conscious: the decision was separate from the decision-experience. According to Libet, it felt like consciousness caused a decision, but the neural activity of that decision was already underway by the time that feeling takes place.

Libet realised what separating these ideas meant. He already knew that only some neural activity became conscious. This is essentially the difference between the brain and the mind: the brain being where neural activity takes place, and the mind being where conscious experience takes place. Not all neural activity becomes conscious, and consciousness does not comprise all neural activity. This distinction is the crux of a much more complicated "metaphysical ... mind-body problem" that Libet

was careful to avoid (Libet, 1965b, p. 85); a problem Chalmers referred to as "the hard problem" (Chalmers, 1996, p. 26).

Suffice it to say that while many understood the difference between brain and mind, very few would have expected the difference to transcend free will. Before Libet, consciousness and free will were considered to be unified, but with his research they had been separated. Two things existed, and neither met the criteria for free will: the decision was not consciously determined, and conscious experience was after the decision, and therefore not causal. According to Libet's results, free will was actually more like a shadow, cast into the mind by the brain.

The separation of free will and consciousness was contentious and alarming. It implied that humans were automata, and that behaviours could be pre-determined. The findings (Libet, 1985; Libet et al., 1983) suggested that the conventional understanding of mind-behaviour causality was inaccurate: in some sense behaviour 'commenced' before the mind. Either that or consciousness was misunderstood.

Libet and his colleagues argued the latter might be the case. For purposes of comparison and control, they also had participants perform the flexion action under two other conditions. In the first of these conditions, participants performed the flexion action at a specific, designated time, as opposed to a freely selected one. In the second of these control conditions, the flexion action was performed in response to a specific stimulus, rather than being ostensibly spontaneous. With these data, they were able to isolate and compare the neural activity of a 'free' act, with the neural activity of a planned act and a reactive act.

The neural activity of the free action was distinct from the neural activation of the planned and reactive flex actions. The free action neural activity had not denoted

planning the same way that the planning condition had, and it did not denote reflex-type reaction, the way that the reactive condition had.

The researchers suggested that the neural activity they were measuring was not necessarily representative of a decision per se, but instead preparation for a decision, which consciousness could then allow or, in the words of Libet, 'veto'. In this version, consciousness did not initiate action, but it could veto unwanted actions: consciousness regained the final say on what happened. This version of free will later became known as 'free won't' (Filevich, Kuhn, & Haggard, 2013). The researchers also had some anecdotal evidence to support their theory: they had recorded instances of participants developing neural activity commensurate with a flex action, without eventually flexing.

Several researchers attempted to test the findings. Trevena and Miller (2010), for example, tested the veto version of free will by asking participants to decide whether to flex or not, as well as which hand to flex following a tone, and compared the neural activations. When they compared the neural activation of participants who chose their left side and those who chose their right side, they found similar neural activity. Their result suggested that no specific decision had been made, rather a decision had been prepared for, after which point 'consciousness' imposed the actual decision. This result supported Libet's veto version of free will.

The experiment was criticized, however. Trevena and Miller had used a tone to indicate when participants should make a decision. Critics argued that doing so misrepresented the spontaneous or endogenous (i.e. free) decision making Libet had carefully tried to preserve (Gomes, 2010).

Filevich et al. (2013) instructed participants to delay their free action, in order to exaggerate the EEG neural activation data. They found that different levels of neural activation were associated with the specific decisions. So much so that participant

decisions could be predicted from the nature of the activation: high or low. These researchers believed that they had refuted "uncaused conscious causation" (p. 10) (i.e. free will), or any veto action version of it. They theorised that decisions are dependent on the neural activity immediately preceding them, irrespective of the decision's nature. For example, the choice you make after an hour of exercise might be different from the choice you make after an hour of meditation, since such different activities result in very different neural activity.

The case against free will became more compelling with the advent of new neuro-imaging technologies. For example Soon, Brass, Heinze, and Haynes (2008b) used a technology called functional Magnetic Resonance Imaging (fMRI) to replicate a version of Libet's study. fMRI uses powerful magnets to measure changes in brain blood ionization as a proxy for neural activity. Ion channels in the brain open and close in response to the demand for glucose required for neural activity. This two-step process means that fMR images are a delayed representation of actual neural activity. It is less accurate in some ways than an EEG, which provided Libet with a very temporally accurate representation of neural activity. But fMRI provided richer and more accurate information on the location and nature of neural activation.

Instead of flicking wrists or flexing fingers, the researchers asked participants (n = 13) to choose which button to press as their free act: a button under their right index finger, or one under their left. Instead of using a dot moving in a circle on a screen, the researchers streamed a sequence of letters to participants, to measure the timing of conscious experience: participants nominated which letter was showing when they became conscious of their intention to press the button.

The researchers did not expect to achieve the same accuracy as Libet because of the lag in fMR imaging, but the neural mechanism was robust and the researchers found

neural activation in the brain before participants reported conscious awareness of their decisions. Not only that, but the researchers found where the activation was occurring and could accurately predict which hand would press the button based on this information. The researchers could see what participants would choose on average 7 seconds before the participant reported conscious awareness of his or her own decision. Due to the lag in PET-derived imaging, Soon, Brass, Heinze, and Haynes (2008a) estimated that the decision had taken place 10 seconds before it entered into consciousness. A 10 second separation between neural activity and conscious awareness is profound. The researchers noted that it was not the magnitude of the activation, but instead the location and shape of it, which predicted the outcome. The findings were almost as remarkable as Libet's original findings: they supported the argument that free will does not exist.

Like Libet, the study received similar criticisms about the decision, since it was binary (i.e. right or left hand), and cued (i.e. participants had to make a decision during a certain time), and therefore did not accurately reflect free decision-making or free will (Gomes, 2010; Trevena & Miller, 2010).

Research was advanced by expanding the context of the free act. Instead of pressing a button, or flexing a wrist, participants were instructed to make an abstract choice. Soon et al. asked participants (n = 8) to perform an abstract decision task by again streaming them a sequence of letters and numbers, and asking them to indicate when they had chosen to either subtract or add the numbers (Soon, He, Bode, & Haynes, 2013). They argued that choosing abstract ideas (rather than actions) more closely reflected the complex nature of free will. Soon et al.'s results reflected those of the earlier button-press studies: there was evidence of neural activation for abstract decisions typically four seconds before a decision was made. The researchers again

predicted specific regions of the brain involved in the decision, and accurately predicted the participants' decisions.

Research into the neural activity of spontaneous decisions, led by Libet and his colleagues (Libet, 1985; Libet et al., 1983), eroded the existing understanding of free will and the mind-behaviour relationship. Where once the mind and consciousness were considered to be the arbiter of free will and vital to the mind-behaviour relationship, other studies have shown that this might not be the case.

2.2 Conscious Will

The results of these studies raised new and significant questions about consciousness, and its role in the mind-behaviour relationship. Consciousness was traditionally considered to have two roles: "monitoring ourselves and our environment … and controlling ourselves and the environment, through the voluntary initiation and termination of thought and action" (Kihlstrom, 2005, p. 34). But if behaviour was not free, could consciousness still play a role? If consciousness did not enact free will, what part was left for it to play? Philosophers had long considered these questions, but what did science have to say?

Consciousness is a physical entity: a physical substance such as anaesthetic can alter it, for example. Consciousness becomes observably altered during sleep, and this too is supported by neurophysiological evidence. There are debates, however, about how consciousness emerges: whether it is from a specific location in our brains (Hohwy, 2009), or 'structure-borne' (Pockett, 2012), for example.

The experience of consciousness is not the same as its physical structure, as Libet and others had shown. The word consciousness is originally derived from the Latin word *conscientia,* derived from *cum* (with or together) and *scire* (to know), which at the time pertained to moral knowledge of right and wrong (Koch, 2004). The word

consciousness was then used in the same way that conscientiousness is used today, which also speaks to the idea of making choices between right and wrong.

The experience of consciousness is a tool for understanding: the home of thoughts and feelings. Defining this aspect of consciousness has always been difficult. Using the tool of understanding to explain the act of understanding, is a bit like using scissors to try and cut themselves (Jaynes, 1990). Perhaps that is why theorists have typically stuck to broad definitions. Searle, for example defined consciousness as "those states of sentience or awareness that typically begin when we wake up in the morning from a dreamless sleep and continue throughout the day until we fall asleep again" (Searle, 1999, pp. 40-41).

Despite the physical bases of consciousness, it has typically been considered free: not limited to any ideas or positions and, as mentioned above, controlled by its 'owner'. The studies mentioned above had cleverly disrupted that idea, but the consciousness examined had focused on timing rather than content, and the studies were essentially observational, rather than experimental. Not long after Libet published his work, researchers began testing the freedom of consciousness.

Wegner et al. (1987) were amongst the first. They tested the ability of participants to willfully and deliberately suppress a thought; specifically the thought of white bears. Participants (14 male, 20 female) were instructed to dictate their stream of consciousness into a tape recorder for 5 minutes. Participants were then instructed to do the same again but to "try *not* to think of a white bear. Every time you say 'white bear' or have 'white bear' come to mind, though, please ring the bell on the table before you" (Wegner et al., 1987, p. 7). In the final stage of the experiment, participants were instructed to do the opposite of what they had been instructed to do during stage 2: say and have 'white bear' come to mind as much as possible. The order of this process was

counter-balanced, so that one group of participants 'expressed' white bear first, and suppressed it second, and the other group suppressed first and 'expressed' second.

Wegner and his team recorded how many times the bell rang, and found something paradoxical: at least initially, participants who were instructed to suppress the thought of white bears, thought about them almost as frequently as those participants who were instructed to think about white bears. Not only this, but when participants were permitted to think about white bears after being instructed not to earlier, they did so at an accelerated rate.

To expand the research, the researchers later repeated the experiment but provided participants with a strategy to overcome the effect: think of a 'red Volkswagen' every time a white bear enters consciousness. The strategy had limited effects on the result and participants continued to think of white bears, despite the instructions.

The researchers suggested from these results that thought suppression might not be possible. Wegner later used the evidence to argue a much grander claim: that free will over thought is not tenable, and that the construct of free will is illusory (Wegner, 2002). He argued that the combination of beliefs about causation, and temporal proximity, resulted in the inference of free will, but not the existence of it.

Wegner argued that the brain links events that occur closely together causally, whether they be physically or temporally close. Touching a hot surface is immediately followed by a burning pain sensation: the brain links the behaviour and the sequelae because of their proximity. If the pain began five minutes later, these events would not be obviously associated. This logic is typically effective and useful: if B follows A, A caused B, thus the grammar of reality. As Wegner notes, though, this is not irrefutable.

Wegner refers to an example of this human error: the sun and the moon. He notes a time when humans believed the sun and the moon were at war, and chased one

another around earth, causing each other's motions. Wegner likens the idea of free will to this error. Conscious will and an action occur very closely to one another, only separated by 150 to 200 milliseconds if Libet's measurements were correct. Most importantly, the conscious will precedes the action, implying that it causes it. If Libet's work was accurate, the actual neurophysiological cause of the action was already underway.

Neural activities are not conscious, so the brain infers that the next nearest perception (experience of will) is the cause of the action. It might be the case that if consciousness took place at a rate faster than the 10 to 15 Hz it is typically experienced at, the causal inference of consciousness might feel more disconnected and less causal (VanRullen, Reddy, & Koch, 2006).

Wegner cited Libet and also acknowledged the experience or feeling of will, but not the actual possession of free will. He described the phenomenon as an illusion. He referred to free will as 'conscious will', since he argued it was not 'free' but, if it existed, it should be consciously caused. As Libet had explained: "Choices of alternative actions can undoubtedly be made unconsciously, but they would not be regarded as a demonstration of … free will unless one was aware [i.e. conscious] of what one was doing and could consciously exert some control over it" (1965b, p. 85).

In his theory, Wegner cited other evidence that free will was illusory. He designed and reviewed other experiments that demonstrated the propensity for consciousness to misappropriate causality. He provided other examples of dysfunctional will appropriation, such as the case of alien hand syndrome. In alien-hand syndrome, a person experiencing the condition feels as though their hand is no longer in their control, but the hand continues to 'act'. Wegner argued that the syndrome was another example of the separation between neural activity and conscious experience,

and demonstrated how the common causation inference could be undone by a condition. In arguing his explanation of the mind-behaviour relationship, Wegner cited another example of unusual conscious experience: hypnosis. He argued that something happens during hypnosis that alters the typical inference of mental causation, although he was not able to explain what this 'something' was.

Despite arguing against the existence of free will, Wegner later discussed the role of intention, a property of consciousness, in causing behaviour. He believed it was absurd that a function as uniquely advanced as consciousness could be purposeless, or that will and behaviour would so closely resemble one another and not be connected. Wegner used the analogy of a compass to a ship to explain his understanding with conscious will as the compass. Conscious will a la the compass does not literally steer the ship, but it does contribute to its direction. Wegner's analogy begs 'ghost in the machine' questions: if conscious will is the ship's compass, who is the captain? Nevertheless, he raises an important point: free or conscious will might be part of a system. Wegner uses the analogy to argue that the purpose of conscious will is to 'steer' behaviour by shaping feelings about it, rather than causing it. By existing, those feelings cause an individual to care about their actions and behaviours. Wegner discussed the social importance of intention, and the relationship between intentions and actions. He cited the example of mens rea: guilty thoughts or guilty intentions. People are accountable for their intentions as much as their actions. One can be guilty of unlawful intentions, or intention can determine the extent of an action's illegality. For example, murder and manslaughter can involve identical actions, but the intention of the action is what determines the sentence.

2.3 Intention

Although arguing against the existence of free will, Wegner included intention in his explanation of consciousness. Pacherie also integrated intention into her explanation of consciousness (Pacherie, 2000, 2006; Pacherie & Haggard, 2010). She refuted Libet's findings and explanations, and argued in support of free will and its role in the mind-behaviour relationship. According to Pacherie, Libet was wrong in his construction of free will and proposed two arguments against his results: the activation but non-completion of an action and, second, the significance of planning an action.

Pacherie argued that Libet's results do not prove consciousness has no effect on action. She argued that unconscious activation might initiate action, but consciousness still precedes actual actions, therefore still potentially causing them. To support her argument, Pacherie cited Miller, Vieweg, Kruize, and McLea (2010), who replicated Libet's study with an important control group: participants who were not required to monitor the clock position for the timing of their conscious intention. Without this quite laborious cognitive task, EEG evidence of neural activity was significantly different from that of Libet's participants.

Pacherie also referred to participants in other, later studies (Schurger, Sitt, & Dehaene, 2012), who demonstrated constant neural activity commensurate with 'action initiation', but only a small percentage of the activity resulted in actual action. This finding meant that Libet may not have been measuring what he thought he was, or that mental causation of action and behaviour was misconstrued. Pacherie argued that Libet's *W* was actually just an urge, not an actual intention, and that such a thing as intention could still exist, separately.

In fairness to Libet, he had supported this idea too. Libet advocated for conscious control arriving so shortly after a neural 'decision', that it might still be capable of

stopping it, or free won't. "Everyone has experienced having a wish or urge to perform an act, but vetoed the actual performance of the act" (Libet, 2003, p. 24). It was how he argued the mechanism worked. As mentioned above, however, his specific experimental construction of a free act was questionable. As Passingham and Lau note,

> The sorts of decisions over which [we] deliberate are not when to make a random finger movement. The decisions are ones that have consequences. These decisions require the integration of all the relevant information about the current context, the alternative possibilities and the costs and values associated with them. (Passingham & Lau in Pockett, Banks, & Gallagher, 2009, p. 68)

Acts of free will are more motivated, complex, contextualised and, according to Pacherie, they begin with intention. Pacherie proposed intention as a replacement for free will, a successor which, ironically, precedes the action itself. Intentions are consciously accessible and shape ultimate behaviour, whether now, in the near future, or in the distant future, according to Pacherie. She argued that intentions are consciously managed well before they are enacted.

Say for example, I 'will' or intend to eat a sandwich. I do not do it right away – I cannot, as there is no sandwich, and there are several steps involved in preparing a sandwich. I need to go to a supermarket. I need to purchase items. I need to assemble a sandwich, and so on. Are these actions free? The sub-tasks involved in enacting my intention may or may not be free, but my intention itself is free, and the intention well and truly precedes the act.

This example illustrates the basis of Pacherie's argument. She argued there is a hierarchy of intentions. At the top, there is the intention to eat a sandwich. Beneath it are sub-intentions, such as going to the supermarket, and sub-intentions beneath those,

like walking to the supermarket. I might not consciously intend to go to the supermarket. This act might not be free, in that I might perform it automatically, but ultimately the intention to eat the sandwich is free, and comes before the eating of the sandwich. To some degree, this sequence restores the conventional, causal understanding of consciousness and action/behaviour.

While intended acts are not always achieved, Pacherie argued that 'intention' (not to be confused with intentionality) is a function of consciousness, and shares a causal relationship with action and behaviour. Pacherie claimed that this sequence of causality allowed for unconscious elements to cause conscious intentions, and conscious intentions could still cause action. Pacherie likened intention to planning: Humans plan for the future, and therefore, act purposefully. Pacherie noted that in relation to free will, relatively little exploration had been made of intention and how long-term goals are achieved.

Pacherie argued that the difference between free will and intention is scope. She argued that Libet was treating free will on a microscopic level, and that while it might not be perceivable at that level, free will was perceivable on a macro level. Pacherie invited theorists to 'zoom out' on the free will discussion.

Pacherie's argument is strengthened in the context of Libet's studies: Libet's participants never would have been initiating wrist flexion if they had not intended or consented to participate in the study, well before the events of the experiment. It is unlikely that any of the participants needed the opportunity of a study to justify a session of spontaneous wrist flicking. Rather, the participants intended to participate in the study even though their eventual attendance, and the activities they participated in, might have been somewhat unfree, automatic, or unintentional.

Pacherie's hierarchy of intention means that immediate actions could be determined unconsciously, but that the process as a whole can be overseen consciously. Therefore, intentions are free, even if many actions are automatic. Perhaps it should be called free intent, rather than free will.

In articulating her theory, Pacherie also referred to the work of Gollwitzer (1999), who argued that future-oriented intentions result in automatic action initiation. In the context of Libet's studies, this is like saying that the intention to flick a wrist probably emerged in participants when Libet instructed participants on how he wanted them to flick their wrists (i.e. when the participants first planning), not immediately before or during the actual flicking. But the neural activities of Libet's participants were not recorded during the instructions. If imaging technology advances far enough, it might be possible to see what happens when an idea first emerges in the brain.

2.4 Intention Modelling

Ajzen also argued for the significance of intention in action and behaviour causation. He developed a theory of all human behaviour named the theory of planned behaviour (Ajzen, 1985). Ajzen's theory emerged after Libet's studies, but was based on a theory developed with a colleague several years earlier (Fishbein & Ajzen, 1975). Both theories emphasised the role of intention in causing behaviour.

Like Pacherie, Ajzen argued that intention serves a planning function in the production of behaviour and action. He argued that most human behaviour follows a plan, which is consciously formulated. The subsequent actions may or may not be consciously controlled, but the plan is consciously determined and, without this plan, the actions would not occur. In Ajzen's words, "Actions… are controlled by intentions" (1985, p. 11). Ajzen and Fishbein equated intention with conation, defined "as a special case of beliefs, in which the object is always the person [his or herself] and the attribute

is always a behaviour" (1975, p. 12). Ajzen argued intentions are determined by attitudes, and specifically two types: personal attitudes and perceived social attitudes. His theory posits that these attitudes shape intentions, and intentions shape behaviour.

Ajzen stated,

> Generally speaking, people intend to perform a behaviour when they evaluate it positively and when they believe that important others should perform it … [and] a person's intention to perform (or not to perform) a behaviour is the immediate determinant of that action. (1985, p. 12)

He emphasised attitudes and minimised the role of other factors in behaviour, such as personality.

While arguing that intention determines behaviour, Ajzen and Fishbein each acknowledged that intention is not a perfect predictor of behaviour, and that what they refer to as the intention-behaviour link can be inconsistent. Ajzen noted that "not all intentions are carried out; some are abandoned altogether while others are revised to fit changing circumstances." (1985, p. 11). He posited that intentions can change over time, but that routine and habitual behaviour can entrench intentions, decreasing the likelihood of new intentions emerging.

Ultimately his point was that intentions are dynamic, a point Pacherie had agreed on (Pacherie, 2006), and this was one of the reasons why intention and behaviour are not more closely connected. Another reason for the poor connection is that intentions can be weak or strong. Ajzen raised the topic of will power and "strength of character" (1985, p. 26), claiming that some actions and behaviours require stronger intentions than others. He provides the oft-cited example of smoking cessation to demonstrate this stating, "many smokers who intend to quit … either change their intentions or, when they do try, fail to achieve their goal" (p. 21). Ajzen also cited a

study of the intention to lose weight and its weak correlation with weight-loss (r = .16, or less than 4% of variance explained).

Apart from the strength of an intention, Ajzen also provided a system of factors that can impede the intention-behaviour connection. There are limits of natural forces, so people cannot levitate, for example. They can only achieve actions and behaviours that they control. These factors belong in two categories: internal and external. Internal factors included skills, abilities, and knowledge, while external factors included time, opportunity, and other people. Ajzen counted emotion in its own category because it is beyond personal control but technically 'internal'. In general, but also in a legal sense specifically, forgiveness is granted to someone who acts under the influence of strong emotion. A grieving mother is not criticised for being too emotional, for example, and self-preservation is a defense against the charge of murder.

To address the shortcomings of intention's ability to predict actual behaviour, Ajzen shifted his focus to attempted (rather than actual) behaviour. He developed a formula for predicting attempted behaviour, which included attitudes towards trying and failure.

Ajzen's inclusion of intention, and his theory in general, raised important issues for free will. Free will is typically thought of as binary: it either exists or it does not. Seldom is it thought of in degrees (i.e. not very free vs. very free). Libet certainly did not think of it in this way, and while Ajzen did not provide great detail about the strength or weakness of an intention, he did consider it to be continuous rather than binary.

Libet had attempted to pare the action in his experiment to its simplest form. But could there have been 'degrees' of wrist-flexion? Could some participants have intended for their flick more than others? It might be the case that free will exists on a spectrum, and that some participants were freer to flick their wrists than others. As mentioned

above, Libet's methodology has been criticised for this reason. The action he studied may not have reflected true choice or the complexities of human behaviour.

Ajzen was interested in complex behaviours and refers, for example, to smoking. Smoking raises its own important topic: addiction, and other compulsive behaviours, which some consider physiologically beyond will. Indeed, addiction has been called a "disease of the will" (Walsh, 1912, p. 744). Bowers pointed out one of the problems addiction raises for intention-based theories of behaviour: an action can be intended, without its consequences being intended. He argued, for example, that one might intend to eat ice cream and attain the pleasure that accompanies it, but not intend the weight-gain associated with it (1992, p. 254). Smoking is another example of this: to intend the pleasure or comfort of smoking, but not the detrimental health effects of it. It might be argued that even two opposing behaviours could be intended: to smoke and to quit smoking. If free will exists, what is its relationship to addiction? As with degrees of free will, Libet never addressed the topic of addiction directly.

While intention does not perfectly preserve the linear, causal relationship between mind and behaviour, it represents a non-free will alternative that preserves the intuition that consciousness is active in behaviour causation, and is congruent with Libet's work.

2.5 Intention and Intervention

Apart from theories and technical criticisms, there is another source of evidence that is important to the mind-behaviour relationship, and the role of intention in behaviour: psychological intervention. If the study of psychology is about understanding the mind and behaviour, the practice of psychology is about changing them.

The ability to change behaviour is one of the truest tests for any explanation of behaviour or action. If the tenets of a theory can be used to found an intervention, and that intervention consistently and reliably changes behaviour, there is good evidence that the theory accounts for behaviour. This is the essence of why understanding free will is important to the practice of psychology.

Sniehotta (2009) designed an intervention based on the theory of planned behaviour, to test its ability to change behaviour. He argued that if Ajzen's theory was correct, changing attitudes would result in changing intentions, and changing intentions would result in changing behaviours. He recruited 579 university students (197 male, 382 female) to test his argument, and randomly allocated them to one of three 'attitude-changing' interventions, before measuring whether changes in attitudes resulted in changes in behaviour regarding "university sports facility attendance" (p. 257).

The interventions involved providing participants with information in the form of text, but each intervention text involved different attitude-changing ideas. The first was the behavioural belief intervention, which focused on the positive effects of exercise in general, and the variety of exercises that are available at a university sports facility. The second intervention was the normative belief intervention, which focused on the benefits of group exercise, exercising with others, and the claim that people approve of exercise. The final intervention was the perceived behavioural control intervention, which focused on the cost of membership, hours of access, ease of access in general, and embarrassment about public exercise, similar to the normative beliefs intervention. Actual sports facility attendance was measured objectively, by the number of times participants 'swiped in' to the facilities during a 2-month period.

Sniehotta found that behavioural and normative belief interventions changed intentions, as the theory of planned behaviour would suggest, but that this did not

translate into behavioural change. He found that the perceived behavioural control intervention did have a modest but significant effect of facility attendance ($\eta^2 = .007$). Participants in this group improved from .86 attendances per 2 months, to 1.22 attendances per 2 months.

Sniehotta used the evidence to argue that the TPB is inaccurate. Theory of planned behaviour-derived interventions which changed beliefs, did not change behaviours, and interventions which did not change beliefs, did change behaviours. He argued that Ajzen had not designed interventions to accompany his theory, which represented a flaw in the theory itself, and the theory could not account for the imperfect relationship between intention and behaviour.

Ajzen's theory received ongoing criticism for these shortcomings (Sniehotta et al., 2014). Although he never explicitly developed the theory for the purposes of intervention, and never claimed to. However, a theory of behaviour might reasonably form the basis of an effective behavioural change intervention. Ajzen argued that his theory had been misused, but acknowledged shortcomings, stating "changing intentions and behaviour is not an easy task" (Ajzen, 2015, p. 134).

Sniehotta et al. (2014) highlighted newer theories of action and behaviour which provided improved behavioural intervention efficacy. These theories focused on the role of temporal factors (West, 2015), included multiple goals and motivations (Presseau, Tait, Johnston, Francis, & Sniehotta, 2013), and involved multifactor and multi-process understandings of behavioural change (Prochaska & Di Clemente, 1982). This research emphasised the role of intention in producing and altering behaviour, suggesting that Ajzen had been on the right track, but there remains limited evidence and understanding of how intention and behaviour relate.

2.6 Behavioural Change

In the same way that the effective practice of psychology can contribute to understanding free will and the causes of behaviour, evidence about self-initiated behavioural change can too: it is arguably about the exercise of free will. Prochaska and Di Clemente examined specifically how behaviour changes and what causes it to change (Di Clemente & Prochaska, 1982; Prochaska, 1979a).

Sniehotta et al. (2014) listed some alternative theories of behaviour that accounted for behaviour change more effectively than the theory of planned behaviour could, but Prochaska (1979a) evaluated more (18 different therapies). He partnered with Di Clemente to develop a model of behavioural change known as the Transtheoretical model, because it transcended other theories (Prochaska & Di Clemente, 1982).

Prochaska (1979a) provided the basis of the model with his 18-therapy meta-analysis, which revealed that all therapies were using a combination of common experiential processes to facilitate change in clients. Prochaska clustered these processes under five labels, the first being 'consciousness-raising'. Consciousness-raising involves bringing attention and awareness to ideas pertaining to an intended change. These ideas can be new to the client, as is the case with psycho-education for example, or they can be revisions of the client's existing ideas.

The second process is self- and social-liberation, and involves the consideration of newly conscious options. When new options, such as new behaviour, become available this is called self-liberation, or the shedding of existing ideas about oneself. When new options become available to a community (e.g., gay marriage), this is called social liberation.

The third process is catharsis, which involves the unblocking and purging of built up emotions, which is amongst the oldest of psychological techniques. Crying is an easily identifiable example of catharsis. Catharsis can be internal in the case of a personal experience, or external like watching an emotional movie.

The fourth process is referred to as conditional stimuli or re-conditioning, and involves inducing a new behavioural response to a stimuli (internal), or manipulating environmental factors to synthesize a different behavioural response (external). The fifth and final process to emerge from the meta-analysis is contingency control or 'maintenance'. This is the process of rewarding new behaviours in order to establish and maintain them. This is a brief summary of a detailed and thorough model, further explanation of which can be found in Prochaska (1979a).

Prochaska and Di Clemente (1982) noted that the first three processes (consciousness-raising, self/social-liberation, and catharsis) most closely resembled typical psychotherapy techniques, while the final two processes are external and behavioural and most closely resembled traditional behavioural intervention techniques. They argued that successful behavioural change requires combining processes of both schools.

Di Clemente and Prochaska (1982) designed a series to studies which examined how people changed without an intervention, in order to test their theory of change in general, and to identify differences between self-change and intervention-assisted change, if any. To do this, they required a measurable behavior. They chose cigarette smoking. They recruited participants who were prepared to undergo an intervention, as well as participants who had already achieved change independently. There were two types of interventions available: aversion therapy and behavioural management therapy. Di Clemente and Prochaska recruited two relatively small groups of

participants: 29 people who were previously smokers and had quit on their own (12 male, 17 female), and compared them with 34 people who were smokers enrolled in interventions (17 male, 17 female). The groups presented with a similar history of smoking and number of previous quitting attempts.

The researchers hypothesized that participants who successfully changed their own behaviour went through the same experience as participants who completed a psychological intervention. They collected qualitative data pertaining to the processes of change as per their theory: their awareness, their choices, their emotions, their strategies, and their behaviours. The researchers also asked about motivation and change: when did they notice it, and how did they experience it. The change was not on the micro and immediate level that Libet's wrist-flexion had been; it involved gradual behavioural change, as Pacherie had suggested (Pacherie, 2013; Pacherie & Haggard, 2010).

Di Clemente and Prochaska (1982) found that, as per their hypotheses, each of the groups (self-changers, and psychological intervention) achieved change via similar processes and conscious experiences. There were differences in which processes groups emphasised. Self-quitters had found self-liberation to be most important, for example, but the processes were the same.

As per the processes of change, both groups had commenced with cognitive and emotional changes followed by behavioural change. The researchers also noted that while these processes could be repeated, they were sequential: they would take place in order, and in the same order, but not simultaneously. The sequential nature of the processes led Di Clemente and Prochaska to infer that behavioural change took place in stages, and that an individual would not progress to a new stage until he or she had sufficiently completed the processes of the previous stage. They incorporated this into

their model. Their first stage was known as pre-contemplation, because it preceded any consciousness-raising processes. The second stage was contemplation, once an idea about change was conscious and newly available for consideration. The third stage was action, which involved actually behaving differently. Finally was maintenance: the process of sustaining the change and resisting any inclination to return to previous behaviour, as well as enacting behaviours to support the change. They later realised that the action stage of change involved two separate stages: preparation and action. Further detail about the theory's development can be found in Prochaska and Di Clemente (1982).

Prochaska and Di Clemente included some common foundations required for behaviour change: positive expectations, motivation for change, and (in assisted change) a warm and healthy client-practitioner relationship. These foundations, together with the processes of change, and the stages of change, formed the Transtheoretical model. The model provided a theoretical map for the conscious experience of behaviour change.

Seeing behaviour-change from this 'macroscopic' perspective is one way that free will is more apparent, as Pacherie had pointed out (Pacherie, 2013; Pacherie & Haggard, 2010). As with the processes of change, the stages of change begin with thoughts and feelings, which are followed by changes in actual behaviour. Unlike Pacherie and Ajzen however, Prochaska and Di Clemente did not focus on intention; it is not named in their model. Their model, however, implies that all behavioural change, assisted or otherwise, follows a similar sequence that places cognitive and affective processes ahead of behavioural processes. Even more specifically, their model aligns with Libet's findings and argument (Libet, 1985). For example, consciousness-raising is like Libet's *W*: it is the beginning of a decision, but not an actual decision or behaviour. A

decision is not actually made until the second stage, and not enacted until the end of the third and beginning of the fourth stages. This sequence aligns with conventional understandings of free will.

Prochaska and Di Clemente also deal with the idea of free will and choice more directly, albeit subtly:

> The role of *choice* in producing individual change has been in the background of many systems of psychotherapy. The concept of choosing has lacked the respectability in the highly deterministic worldview of most scientists. Many theorists of therapy did not want to give their critics more reason to call therapists tender-minded by openly discussing the issues of freedom and choice. Consequently, many therapy systems seem to assume that clients will choose to change as a result of therapy, but the systems do not articulate the means by which clients come to use the process of choosing. (emphasis in original) (1982, p. 279)

In other places they distinguish between a whim or a wish and an intention: " [one] can *wish* to change, but this seems to be quite different from intending or seriously considering change…" (emphasis in original) (Prochaska, Di Clemente, & Norcross, 1992, p. 1103).

Like Ajzen, Prochaska and Di Clemente were interested in the role of motivation in behaviour. Motivation is typically considered to be a consciously-controlled property, and to exist in degrees rather than absolutes. Motivation is not usually considered binary, nor is will power, but free will is. Prochaska and Di Clemente considered motivation to be one foundation of change.

The Transtheoretical model addressed ideas about free will and choice and intention both directly and indirectly. Prochaska and Di Clemente focused on self-

change, which more closely reflects an act of free will than assisted change, such as wrist flicking. In regards to self-changers, they discovered that the most important process involved in change was 'self-liberation'. This process, they believed, was the least researched, but represented the moment of transition from cognition to action. According to Prochaska et al., this is the real act of 'choosing', and involves "the sense that one was becoming the kind of person one wanted to be" (p.1109).

Prochaska and Di Clemente later studied self-changers exclusively (1983). With smoking as the target behaviour again, the researchers recruited 872 participants and collected data from them every six months for two years, to find out if and how their thoughts, feelings, and behaviour relating to smoking changed.

They developed a survey to determine each participant's stage of change, and recruited participants from each stage, including pre-contemplation. These participants were essentially unaware of and unmotivated to change, and were hence labelled 'immotives'. Their inclusion has important implications for free will and represents another way of researching it: studying its absence.

Di Clemente et al. (1991) later focused on pre-contemplative and contemplative stage smokers, to study how they responded to an intervention. The intervention involved self-help manuals with telephone and mail follow-ups. As per their expectations, contemplators were more likely than pre-contemplators to achieve behavioural change, a finding that again aligns with a conventional understanding of free will. More than 20% of participants without an intention to quit smoking reported at least one attempt to quit smoking in the six months following the minimal intervention, and more than 5% of this group reported that they were not smoking at the six month mark.

The Transtheoretical model has also been criticised. For example, West (2005) argued that the 'staged' nature of the model was inaccurate, since people could be in more than one stage at a time. This is an interesting idea because, in the model, conscious activity or mind precedes behaviour, but perhaps there is an extent to which these processes happen simultaneously, or even out of order.

West also points out that the categorization of participants according to stage could lead to the wrong treatment, or people who could benefit from treatment not getting treatment at all. Being a 'pre-contemplator' might result in a 'motivational interviewing' intervention, when beginning with a behavioural intervention might achieve better results. People who might benefit from an intervention might not be offered one at all if their assessed 'stage' deems them 'unready', which is a negative result for the model.

West also criticised the implied idea of planning in behavioural change: by answering questions about readiness for change, the Transtheoretical model implies that people have plans to change, since they can record the status of those plans. However as West points out, people are not inclined to plan behavioural change and typically over-rely on sheer willpower. Assuming that a stage is part of a plan could be invalid, and therefore invalidates the therapeutic decisions based on that assumption. De-emphasising planning contrasts sharply with Ajzen and Pacherie, who both argued that planning was an important part of behaviour.

West also criticised the trans-theoretical model for over-emphasising conscious decision-making and virtually ignoring important 'subconscious' aspects of behaviour. There is evidence, for example, that 'subconscious' influences have measurable and significant effects on behaviour (Bargh, Chen, & Burrows, 1996; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001), but the Transtheoretical model overlooks these.

Unlike theories about free will, consciousness, and intention, the Transtheoretical model is derived from evidence of behaviour change and behavioural interventions. It implies ideas about the mind-behaviour relationship and free will, however, which can be discussed with this agenda. The model places cognition and emotion ahead of behaviour in the causal chain, and includes the idea that consciousness 'prepares' decisions (consciousness-raising) before they are made (self-liberation). Criticisms of the model challenge this construction, and perhaps most significantly its neglect of subconscious processing. The Transtheoretical model does not well account for non-conscious contributors to behaviour.

This chapter has explored the mind-behaviour relationship and some of its elements: free will, consciousness, and behaviour. This exploration included the work of Libet (Libet, 1985; Libet et al., 1983) and Wegner (Wegner, 1989, 2002; Wegner et al., 1987), whose arguments oppose a conventional understanding of free will and the mind-behaviour relationship. The chapter contrasted their arguments with the work of Pacherie on intention (Pacherie, 2013; Pacherie & Haggard, 2010), and other theories of behaviour which advocate intention, such as the Theory of Planned Behaviour (Ajzen, 1985, 2011). However, these explanations of mind-behaviour relations too have been criticized for, amongst other things, not producing effective behavioural change interventions. Finally, this chapter explored self-initiated behaviour change, which is possibly the best example of free will, in Prochaska and Di Clemente's Transtheoretical Model of behaviour change (Prochaska, 1979b; Prochaska & Di Clemente, 1982). The theorists outlined stages of behaviour change entailing cognitive and emotional processes, however their theory too has been criticised for not facilitating behavioural change, and neglecting processes of the mind.

Ultimately, in the last three decades, relatively little progress has been achieved in understanding the relationship between mind and behaviour. Despite this, research into the relationship is stagnant. It has typically been pursued in neurological and behavioural capacities, but rarely in phenomenological or experiential capacities. The relationship would benefit from further research attention, focusing on the interaction of free will, consciousness, and behaviour.

Chapter 3: Hypnosis

Chapter 2 broadly explored themes in the mind-behaviour relationship. It discussed the idea of free will and research that challenges it, as well as consciousness and its role in the relationship. It also discussed theories that present a version of free will (intention), and the relationship of each of these has to the idea of behaviour change.

Chapter 3 introduces the topic of hypnosis as a vehicle for exploring ideas raised in Chapter 2: the mind-behaviour relationship, free will, consciousness, intention, and behaviour change within these relationships.

It has been argued that hypnosis represents an exciting opportunity to understand free will, consciousness, and the mind-behaviour relationship (Pockett, 2004). Hypnosis is a unique intervention, typically associated with two unusual qualities: the ability to alter consciousness, and the ability to alter will. Disagreement remains about each of these.

This chapter explores some of the evidence for each of these qualities, since they both remain unclear. Like the mind/behaviour relationship, hypnosis is not yet fully understood. Understanding it could, in turn, help illuminate the mind-behaviour relationship. Hypnosis is also unique in that it is both a method of investigation (Oakley & Halligan, 2013), and a technique for intervention. This chapter will also briefly explore some of hypnosis' abilities as a psychological intervention for behaviour change.

> Hypnosis is the black sheep of the family of problems [that] constitute psychology. It wanders in and out of laboratories and carnivals and clinics and village halls like an unwanted anomaly. It never seems to straighten up and resolve itself into the firmer proprieties of scientific theory. (Jaynes, 1990, p. 379)

Definition

Hypnosis is difficult to define. The American Psychological Association (APA) invited a group of experts to define hypnosis (Green, Barabasz, Barrett, & Montgomery, 2005). They ultimately agreed that:

> Hypnosis typically involves an introduction to the procedure during which the subject is told that suggestions for imaginative experiences will be presented. The hypnosis induction is an extended initial suggestion for using one's imagination, and may contain further elaborations of the introduction. A hypnotic procedure is used to encourage and evaluate responses to suggestions. When using hypnosis, one person … [a client] is guided by another (the hypnotist) to respond to suggestions for changes in subjective experience, alterations in perception, sensation, emotion, thought, or behaviour. Persons can also learn self-hypnosis, which is the act of administering hypnotic procedures on one's own. If the subject responds to hypnotic suggestions, it is generally inferred that hypnosis has been induced. Many believe that hypnotic responses and experiences are characteristic of a hypnotic state. While some think that it is not necessary to use the word *hypnosis* as part of a hypnotic induction, others view it as essential. (p. 262)

Some critics likened this definition to the proverbial camel: a horse designed by a committee (H. Spiegel & Greenleaf, 2006, p. 111), and offered the following alternative:

> Hypnosis (or trance) [is] an animated, altered, integrated state of focused consciousness, that is, controlled imagination. It is an attentive, receptive state of concentration that can be activated readily and measured. It requires some degree of dissociation to enter and become involved in imagined activity, enough concentration for an individual to maintain a certain level of absorption, and some degree of suggestibility to take in new premises. (2006, p. 113)

The problem is that each of these definitions emphasises a different idea: the former emphasises the process of hypnosis, while the latter emphasises the product of the process. When the APA invited another group of hypnosis experts to review and reassess the definition of hypnosis, they were careful to separate these two ideas (Elkins, Barabasz, Council, & Spiegel, 2015). The product or experience of hypnosis was defined as a "state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion" (p. 6). The process of hypnosis was defined as "*Hypnotic Induction.* A procedure designed to induce hypnosis" (p. 6).

While this distinction might seem obvious now, the confusion is a reflection of how confusing hypnosis can be. The new definition has divided some researchers and theorists. By defining the product of hypnosis as a state, the definition has re-ignited a long-burning argument about the role of consciousness in hypnosis.

3.1 Hypnosis and Consciousness

There is a long-standing disagreement in hypnosis research about how it produces changes in cognition and behaviour. Some hypnosis theorists believe that the

product of hypnosis is an alteration to physical consciousness (i.e., a trance), while other theorists deny this, arguing that there is no such alteration. The former believe that consciousness is uniquely altered during hypnosis, and are known as state theorists (i.e., an altered state). The latter group believes that hypnosis actually results from a combination of social and cognitive factors such as peer pressure, authority, and role-playing. This group is known as non-state theorists. State theorists were pleased with the new and 'refreshing' definition of hypnosis (Barabasz & Barabasz, 2015), while non-state theorists have described the inclusion of the term 'conscious state' as a step backward (Lynn et al., 2015).

Consciousness was discussed in chapter 2 using Searle's definition of consciousness, and the difference between physical and experiential consciousness. Searle's definition of consciousness does not shed much light on the topic of hypnosis. He defined consciousness as "those states of sentience or awareness that typically begin when we wake up in the morning from a dreamless sleep and continue throughout the day until we fall asleep again" (Searle, 1999, pp. 40-41). Research participants who have experienced hypnosis describe alterations to their sentience and awareness, and often liken it to a dream. Does this make hypnosis subconscious? The difference between physical and experiential consciousness is crucial to understanding hypnosis. Theorists who support state-based explanations of hypnosis argue that altering physical consciousness is the reason for an altered experience of consciousness. In contrast, there are theorists who propose that hypnosis does not involve physical changes in consciousness, only experiential changes, and that these changes are socially-derived. Any theory of hypnosis hinges on this distinction: its interpretation of consciousness. The two key positions, state and non-state theories, are discussed below.

3.1.1 State Theories

A hypnotically altered physical 'state' of consciousness defines state theories. Hilgard (1977) developed the most renowned state theory of hypnosis: Neodissociation theory. He hypothesised that consciousness consists of multiple, integrated streams, which hypnosis can dis-integrate. To test his theory, he used hypnosis to separate the experience of pain from conscious experience.

Pain produces an almost immediate and pronounced experience in consciousness, and was therefore an ideal phenomenon for Hilgard to assess the effect of hypnosis. He adopted a technique for eliciting pain known as the cold pressor test, which involved having participants place their "hand and forearm in circulating cold water" (Hilgard, 1969, p. 105).

Hilgard was able to established a linear, causal relationship between reported degree of pain, and water temperature, so that he could validly manipulate 'pain level' and record reported experience of pain (Hilgard, 1969). Once he had established baseline levels of pain, he was able to test whether hypnosis could alter or reduce the experience of pain.

In one of a series of small studies, Hilgard was able to demonstrate that for some participants (n = 8) painfully cold water without hypnosis could become painless with hypnosis (n = 3), before a suggestion for painlessness was even given. Once the suggestion was given, none of the participants experienced pain (Hilgard, Cooper, Lenox, Morgan, & Voevodsky, 1967)

Hilgard used the results of these studies to evidence a theory of hypnosis and the structure of consciousness in general. He argued that hypnosis acted by first separating one consciousness into two, one of which could perceive pain and one that could not. In the consciousness that perceived pain there was a second division, between the

perception of pain and the ability to communicate it. Meanwhile, in the stream of consciousness that did not perceive pain, there was no interruption to the ability to communicate. According to Hilgard, the result is a person who can experience pain in one stream of consciousness but cannot communicate it, while in their other stream they are without pain and able to honestly report that condition. Hilgard later conducted a series of experiments demonstrating that he could dis- and re-integrate a participant's ability to communicate his or her sense of pain, which gave the sense that the participant was 'hidden' from the pain during hypnosis (Hilgard, 1992). The phenomenon became known as the hidden observer.

Hilgard's model of consciousness was an important part of his theory, and accounted for how a hypnotised individual might experience pain but be unable to express it. He cited other instances of 'split consciousnesses' to support his theory, such as dissociative identity disorder. His theory and research paradigm defined hypnosis for several years, but have since received significant criticism. Spanos led a group of researchers testing the validity of the hidden-observer phenomenon. The researchers manipulated the instructions given to the participants about their 'hidden-observers' and found that virtually any suggestion could be achieved. Spanos and Hewitt (1980) tested a group of sixteen participants (10 male, 6 female) by giving their hidden-observers diametric suggestions. The researchers told one group of participants (n=8) that their hidden-observer would experience no change in pain, and a second group (n = 8) that their hidden-observer would experience a reduction in pain. The first group of participants reported experiencing pain, and the second group reported experiencing reduced pain. The researchers described the result as "unambiguous" (p. 1201): the suggestion was shaping the behaviour of the hidden-observer.

Spanos, Radtke, and Betrand (1984) elicited not only one, but two hidden observers. They trained a group of eight participants (5 female, 3 male) to recall a list of words, induced hypnosis with them, suggested amnesia, and then elicited a hidden observer who could recall the list of words despite the suggestion for amnesia. All of the participants 'forgot' the words during the hypnotically suggested amnesia, recalled all of the words during the hidden-observer trial, forgot them again after the hidden-observer was 'cancelled', and later recalled all of them after the hypnosis ended.

In a sub-experiment of the same study, the researchers elicited two hidden-observers: one in each brain hemisphere, and then managed to elicit them separately. They did this by giving each hemisphere (and therefore each hidden-observer) a unique talent. Each hemisphere was randomly assigned the ability to recall either abstract or concrete words. Eight participants (8 female) were randomly and evenly divided into two samples: 1) right hemisphere/concrete words – left hemisphere/abstract words, and 2) right hemisphere/abstract words – left hemisphere/concrete words. The participants were then hypnotised and told "the human brain is specialized so that it stores concrete information on its right [left] side while it stores abstract information of its left [right] side" (p. 1163). The researchers wanted to test whether the hidden-observer was a special, uniquely accessed, modified consciousness or just another regular hypnotic suggestion. In exactly the same manner as their earlier experiment, participants recalled all words before hypnosis, could seldom recall words during suggestion for amnesia, recalled all abstract but nil concrete words when the abstract hemisphere was suggested for, recalled all concrete words but nil abstract words when the concrete hemisphere was suggested for, and recalled all words when hypnosis was terminated. The hidden-observers abided by whatever suggestion they had been given. Spanos and his colleagues concluded that hidden-observers were functions of

suggestion, not structures of consciousness. The finding undermined Hilgard's theory, and state theories in general. The results demonstrated a problem Wegner had articulated well:

> The malleability of the hypnotized person is the central impediment to the development of theories of hypnosis … If any theory says that hypnotized people ought to behave in a particular way … the hypnotist who wants to test that theory can usually get hypnotized people to do exactly what the theory predicts … the hallmark of hypnosis is the pliability of the [participant]. (Wegner, 2002, pp. 297 - 298)

If the hidden observer can produce any experience suggested of it, what are the qualities that define it? How can we know what it is, or even prove it exists? The same questions apply to altered states of consciousness in general: if anything that can be achieved in an altered state can also be achieved in an unaltered state – does an altered state necessarily exist? Does it need to? Questions like these gave rise to non-state explanations of hypnosis.

3.1.2 Non-state Theories

These questions were not new, and researchers had long been using control groups to try and answer them. Orne gave control group participants a new instruction that changed hypnosis research.

Orne (1959/2006) was initially interested in the transferability of hypnotic phenomena. He designed an experiment that included confederates who modelled specific hypnotic phenomena in a group scenario to see if the other group members would mimic it. He recruited two confederates from a university-grade, psychology class learning about hypnosis, hypnotised them, and suggested dominant hand catalepsy. Once he knew they could and would manifest the phenomenon, he selected

them ‘randomly’ in a group hypnosis exercise, to see if other group members (n=9) would manifest the same phenomenon. As he expected, the other group members who had witnessed the confederate’s example, also manifested the dominant hand catalepsy.

He trialled the design again at another university with a smaller group of participants (n = 4), found the same result, and decided to proceed with a full-scale experiment. In this study, Orne recruited new confederates, nine (9) participants for an experimental group, another nine (9) for a control group, and proceeded with a class demonstration of hypnosis. He found that five (5) experimental participants demonstrated dominant hand catalepsy, two (2) demonstrated catalepsy in both hands, and two (2) did not demonstrate hand catalepsy in either hand. To make sure of his results, Orne had two assessors rate how hypnotized participants had seemed, and only included participants rated deeply hypnotised by both assessors. Interestingly, and problematically, three (3) participants from the control group also demonstrated hand catalepsy, even though they had not witnessed it.

Orne also argued that participants might deliberately ‘under-achieve’ on a baseline measure of a behaviour in order to exaggerate the effect of hypnosis. He believed that much ‘hypnotised’ behaviour could be elicited from unhypnotised people provided with the right motivation. It was after realising this that he began instructing participants to ‘act’ as though they were hypnotised, to see how this new ‘suggestion’ would shape experimental behaviour (Orne, 1971). He reported borrowing the idea from placebo studies in which pharmaceutical-trial participants responded to inert substances. He hypothesised that hypnosis acted via a placebo effect, and borrowed from Sarbin’s Role Theory (1943) to develop a theory of hypnosis. He proposed that being ‘hypnotised’ was a role involving certain expectations, beliefs, cognitions, and

motivations, and that these, rather than a change in physical consciousness, accounted for hypnosis' effects.

There were problems in the beginning: his simulating participants would smile, embarrassed, and ask if they were doing it properly. So Orne introduced a second experimenter, who instructed participants to mislead or 'trick' the first experimenter. According to Orne, this important change made a significant difference. Hypnotists and researchers were unable to identify who was hypnotised and who was simulating. The finding meant hypnosis seemed less inexplicable, empowering theorists to expand social phenomenon-oriented explanations of hypnosis rather than a untestable, consciousness-oriented ones. The simulator design provided a useful tool for delineating between hypnosis and 'fake' behaviour, diminishing the popularity of state-based explanations of hypnosis.

Several non-state or socio-cognitive theories have been developed since, including Kirsch's Response Expectancy Theory (Kirsch, 1985). He understood the comparison Orne had made with placebo studies and hypothesised that the same three types of cognitions necessary for the placebo effect would be necessary for the production of hypnotic effects. The first was perception of context: according to Kirsch, a hypnotic client needed to perceive the context of hypnosis as appropriate for hypnosis. This might be a stage in front of 100 people, or it might be the privacy of a practitioner's office, but in either case a client's perception of the context would determine the effectiveness of hypnosis. Secondly, he identified response beliefs such that how appropriate a client believes the requested or suggested hypnotic behaviour to be will influence how closely it is adhered to. Finally, Kirsch argued that a client's expectations about his or her personal responsivity would shape the degree and extent

of his or her hypnotic behaviour. Expectations were really the key factor for Kirsch, since that was what he understood the defining quality of the placebo effect to be.

To support his theory, Kirsch cited experiments in which the manipulation of pre-hypnotic expectations in each of the three cognition types could influence hypnotic behaviour. These experiments included Orne's cataleptic hands, and examples of his own research (Gearan, Schoenberger, & Kirsch, 1995). In this study, the researchers trained two groups of participants (n=60, female=44) to practice physically enacting a movement they wanted to produce during hypnosis, while not training a third, control group (random-allocation not cited). The purpose of the study was to test whether task rehearsal and task imagining was better or worse than imagining alone: they found that the effect of rehearsal training was not significant. What was significant, however, was the correlation between expectations and produced behaviour. Kirsch had regularly found that expectations proved the best predictor of hypnotic responsivity. His work inspired others as well.

Raz (2007) for example, coined the term *Hypnobo*: a combination of the ideas hypnosis and placebo, and wrote of its potential. When hypnosis was compared with a non-pharmaceutical placebo ('subliminal reconditioning') for chronic headaches (n = 103), Spanos et al. (1993) found no significant difference in the ability of the two interventions to reduce the number of headaches. Hypnosis and a placebo intervention achieved equivalently effective reduction in chronic headaches. The research is supported by evidence that pharmaceutical interventions and corresponding placebo interventions elicit similar neurological processes (Benedetti, Carlino, & Pollo, 2011). In 2013, the *American Journal of Clinical Hypnosis* ran a special issue, just to address Kirsch's work (Lankton, 2013).

Placebo explanations of hypnosis are not without problems. Many placebo theories rely on the importance of classical conditioning, and emphasise learning sources (Stewart-Williams & Podd, 2004). But what about instances in which hypnosis has never been undertaken before? How do participants know how to respond? While he urged further research, Raz later acknowledged that the correlations between good placebo responding and hypnotic responsivity are modest at best, a sentiment echoed by Frischholz (2014). Since hypnotizability and placebo-responsivity are seemingly unrelated, to what extent can the constructs be related? Placebo studies account for some but not all of hypnosis efficacy.

3.1.3 Imaging Studies

Being hypnotised can and often does resemble being asleep, but neuroimaging data suggests it is qualitatively different from sleep (Landry & Raz, 2015). As with consciousness in general, and free will, hypnosis theories are ultimately limited by the capabilities of imaging technology. The advent of increasingly sensitive and accurate neuroimaging techniques has greatly improved knowledge of consciousness and hypnosis. In response to new imaging studies, Kirsch (a socio-cognitive theorist) acknowledged "that the data … have led me to a more agnostic stance" on the state vs. non-state debate (Kirsch, 2011, p. 359). To date, imaging studies have tended to support state theories of hypnosis.

For example, a team of researchers lead by Rainville examined the neural mechanisms of hypnosis with positron emission tomography (PET) and electroencephalography (EEG) (Rainville, Hofbauer, Bushnell, Duncan, & Price, 1999). PET involves the injection of radioactive dye into the bloodstream, which can then be imaged with X-ray to produce a three-dimensional image of neural blood flow, while EEG is a measure of electrical activity on the scalp proven to approximate neural

activity. The researchers were interested in how a normally conscious brain differs from a hypnotised brain, and from a hypnotised brain subjected to pain but with suggestions for analgesia. The researchers induced pain by resting the participants' (n=8) left hands in painfully hot water: 47 degrees celsius. As per previous findings, the researchers could modify the experience of pain: increasing and decreasing it with hypnotic suggestions. More importantly, hypnosis resulted in a significant increase in regional Cerebral Blood Flow (rCBF), particularly evident in the left hemisphere. They also found evidence of increased delta-wave activity, which is a particular frequency of electrical activity measured at the scalp, typically associated with dreaming. The authors claimed that the "result(s) support a state theory of hypnosis … [and] a new description of the neurological basis of hypnosis, demonstrating specific patterns of cerebral activation associated with the hypnotic state and with the processing of hypnotic suggestions" (p. 110).

Newer imaging technologies have also been used to image cortical activity during hypnosis. For example, functional Magnetic Resonance Imaging (fMRI) has been used to compare the brain in a hypnotised state with it in an unhypnotised state, to identify the differences. McGeown et al. (2012) had participants look at a grey image, and gave them suggestions to see colours and, inversely, look at colourful images with suggestions to see only grey. Participants completed the procedure, which took place inside an fMRI machine, while both hypnotised and not hypnotised (repeated measures) to compare the neural activity under hypnosis with suggestions alone.

Participants (n = 18) reported significant alteration of colour perception. The fMRI data corroborated this, indicating changes in neural activity correlated with these reported colour transformations. Perhaps most importantly, while participants experienced the colour transformations and changes in neural activity with hypnosis

and with suggestion alone, "hypnotic induction enhanced experiential changes in colour and the level of activation in associated cortical areas" (p.111). In other words, hypnosis was not necessary to experience changes in colour perception, but it did consistently enhance it. It produced a reliable and unique effect, above and beyond suggestion alone.

Other researchers have conducted meta-analyses of brain imaging studies testing hypnosis. The combined research results offer detailed explanations of the mechanisms of hypnosis, and provide support to state theories (Landry & Raz, 2015).

3.2 Hypnosis and Free Will

In the same way that hypnosis can inform the mind-behaviour relationship via the idea of consciousness, so too can it inform the relationship via the idea of free will. Free will and consciousness also have in common that hypnosis research has propagated two primary, theoretical positions. The first is that hypnosis alters free will since, as discussed above:

1. Free will is intrinsic to consciousness (Bowers, 1992; Kihlstrom, 2005; Wegner, 2002), and
2. Consciousness is altered during hypnosis (Hilgard, 1977).

∴ Free will is altered during hypnosis.

This is how state-theorists typically construct free will in hypnosis, and probably why stage hypnosis performances are so compelling: they affirm this intuitive logic. Not only that, those who have experienced hypnosis report that it feels "*surprisingly* easy and *surprisingly* real" (Barnier, Dienes, & Mitchell, 2012, p. 2) (emphasis in original).

The evidence that supports this position is old, and typically uses what are known as aversive experimental designs to demonstrate that hypnosis can be used to make study participants perform unpleasant, embarrassing or undesirable acts, i.e., against their 'will'. There are several problems with these designs, which will be

discussed in greater detail below, however, and perhaps more importantly, they are not commensurate with Libet's findings about consciousness and free will.

The second position on free will in hypnosis is that it does not alter free will. This position is typically supported by evidence from an experimental design known as the counter suggestion design, which instructs study participants not to perform hypnotic suggestions when they are given. There are problems with this design, and the results from the studies are conflicting. These designs, and other less prevalent designs, will be discussed below.

Ultimately the studies produce a complicated and unclear image of hypnosis, consciousness, and their roles in the mind-behaviour relationship. This means that determining the role of free will in hypnosis is not easy, although it is important for several reasons, with legal reasons being amongst the most important. If hypnosis can alter free will, this needs to be reflected in the law.

An Australian court, for example, found a man guilty of sexual assault by hypnosis. Perry (1979) examined evidence from the case of New Zealand man, Mr Barry Palmer, who allegedly sexually assaulted three women while practising lay hypnosis in Australia. Palmer was accused of hypnotizing participants and, while they were in trance, sexually assaulting them. The prosecution argued that since the women were hypnotized, they were unable to stop Palmer from assaulting them. The defence argued that hypnosis is not capable of such power, and that therefore, the women were complicit in the sexual acts. Each legal team employed experts in hypnosis to provide evidence and argue their point. The prosecution's experts cited the work of Watkins' research that hypnosis is capable of coercion, stating "if we can anesthetize an arm to remove pain, then we can anesthetize a super-ego to remove guilt" (Watkins, 1972, pp. 97-98). The defence disagreed obviously, and as one of their expert witnesses argued, if

hypnosis is as powerful as the prosecution had suggested, why won't clients follow simple suggestions for improved mood (Perry, p. 206), for example. As Perry points out, the argument descends to an unresolvable position from here: those who believe that hypnosis is coercive point at clients who abide and argue the rest have not received adequate hypnosis. Those who believe that hypnosis is *not* coercive point at clients who do *not* abide, and argue that the rest are an exception, subject to a self-fulfilling prophecy-type phenomenon. The New South Wales Supreme Court eventually convicted Mr Palmer of sexual assault, before the Court of Criminal Appeal overturned the decision, evidence of how divisive understanding the matter of coercion in hypnosis is.

Several researchers have examined legal proceedings of cases involving hypnosis to shed light on the topic of free will in hypnosis (Burrows, Dennerstein, & Frenader, 1983; Judd et al., 1986; Laurence & Perry, 1988; Vingoe, 1998; Wagstaff, 2008), but they all relied on the same, existing evidence, and reached similar, equivocal positions on the matter.

Another important reason to understand free will in hypnosis is for the practice of hypnosis. Relaxation techniques like meditation and hypnosis are becoming increasingly popular. Clients should be appropriately informed before agreeing to interventions that may affect their ability to make decisions. Information about hypnosis as an intervention is also discussed below.

3.2.1 Hypnosis can alter Free Will

> Clearly, hypnosis involves a significant departure from the everyday experience and exercise of conscious will. (Wegner, 2002, p. 272)

As mentioned above, the idea that hypnosis can alter free will has been supported by research. This research, however, tends to be derived from a specific experimental design: aversive designs. Aversive designs involve using hypnosis to

'force' participants into unfavourable or unpleasant actions or behaviours. Much of the early research into the relationship between free will and hypnosis employed an aversive design. Several types of aversive designs have been used: dangerous, anti-social, and counter-intuitive, amongst others.

Dangerous Acts

> Do you know what sulphuric acid is? … sulphuric acid is very dangerous. It will scar the skin and put out the eyes. (Rowland, 1939, p.116)

Rowland (1939) conducted an oft-cited, two-part aversive design study. He hypnotised 6 participants (4 female, 2 male) and suggested they approach and handle a live, venomous rattlesnake. The snake was in fact safely behind an invisible pane of glass. After inducing hypnotic trance, Rowland made the suggestion to participants that the snake was a "piece of coiled rubber rope" (p. 115), and for them to touch it. Three of his four participants reached for the live and agitated snake without hesitation. The result suggested that hypnosis could make participants endanger themselves against their will.

In part two of the experiment, Rowland tested whether hypnosis could make participants harm others. He employed a confederate to provide hypnotised participants with a beaker of sulphuric acid before instructing them to throw the acid onto the confederate's face, which was again protected by invisible glass. Much like part one, participants threw the dangerous acid at the confederate's face.

These results were considered surprising and sensational at the time. By inducing behaviour that presumably no healthy person would willingly perform, Rowland argued that hypnosis had counteracted free will. He concluded that only suitably qualified professionals should practice hypnosis, and recommended a re-

visitation of the "acceptation that hypnotized persons will not performs acts that violate their ideals" (1939, p.117).

There are some obvious deficits in the study. There were only 6 participants for example, and there were ethical shortcomings. Not only were his participants in some obvious danger, they were also at risk of emotional trauma and some of Rowland's participants presented with symptoms of shock after participating in the study.

Anti-social Acts

> Get out of here, you dirty son of a bitch. Parrish (1968) cited in (Levitt et al., 1975, p. 60)

Since the risks to participants in Rowland's research were obvious and unsafe, researchers sought other inherently undesirable behaviour to test hypnosis with. Some researchers settled on criminal or anti-social acts. Wells (1941) for example, hypnotised participants and had them 'steal' a one-dollar bill from his own overcoat. Whereas Watkins (1947) hypnotised members of the army and 'made' them divulge classified information. Kline (1958) even managed to have participants perform acts so anti-social that he would not publish them for legal reasons. Kline (1972) examined case notes from clinical settings in which hypnosis had gone wrong. He noted the unsettling example of a hypnotherapist who, while attempting to stir motivation, suggested a client kill her dog if she disobeyed her diet. According to his record, she went home, ate a tub of ice cream, before suffocating her dog to death. The client was reportedly so traumatised with guilt that she attempted suicide.

In the laboratory, Levitt et al. (1975) undertook anti-social act research to test the power of hypnosis. The researchers selected two behaviours which were not illegal per se, but highly objectionable: cutting up an American flag and destroying a bible. They recruited 14 hypnotizable participants and offered them $2.50 per hour for their

time. After an initial hypnotic induction, an American flag and scissors were placed in front of each participant before they were instructed to "Take the scissors and cut it up" (p. 61). Participants were given 1 minute to commence 'snipping' and, if they did not, the suggestion was deemed to have failed. Burning the bible involved the same procedure: hypnotic induction followed by the instruction to tear out a single page. If they tore out a single page, they were handed a large ashtray, a book of paper matches, and instructed to burn that page.

Thirteen of the fourteen participants cut up the American flag, only three of whom hesitated in the process. The bible received less damage: only 5 participants were prepared to burn a page of it, although the researchers noted that every person who tore the page out also burned it. Three participants flatly refused the suggestion, while the remaining six had their time expire. The researchers noted that considerable difficulty was encountered 'following up' participants, and that only one had been able to identify the purpose of the experiment when asked. The researchers acknowledged that their findings could not provide significant insight, but that hypnosis had somehow contributed to the commission of these anti-social acts.

Counter-Intuitive Acts

> You will find yourself strongly attracted to the third female you see after you leave the building. (O'Brien & Rabuck, 1976, p. 273)

Researchers pursued other testable behaviours to understand the relationship between free will and hypnosis. O'Brien and Rabuck (1976) wanted a task that would be uncomfortable and 'self-repugnant', without being dangerous or anti-social. They settled on making a 'verbal, homosexual approach' to a person of the same sex: an act that was technically illegal when the study was conducted in Pennsylvania. The researchers recruited 7 female volunteers, aged between 19 and 40 years old, and

divided them into three experimental conditions: hypnosis (n=2), post-hypnotic suggestion (n=2), and waking suggestion (n=3). They then hypnotised them or instructed them to approach the third woman they saw after leaving the laboratory, express their attraction, and suggest they go somewhere alone together. A research assistant was instructed to follow them after they left the laboratory and note what they did. The experimenters also controlled who the participants would meet: they had recruited a team of 5 female confederates to wait outside the laboratory. The confederates knew what to expect, but did not know which condition each of the participants belonged to.

One of the participants was excluded from the waking suggestion condition after she recognised a confederate. Of the remaining six participants, however, only the other two unhypnotised, waking suggestion participants approached the third women they saw and suggested they go somewhere alone together. Other participants reported feeling attracted to the third person, and the intention to say something, but could not remember exactly what to say, or did not say anything.

Noble and McConkey (1995) had a similar idea which avoided dangerous and antisocial shortcomings. Instead of making homosexual approaches, they suggested participants experience a sex change. They wanted to see if hypnosis would 'stand up' to conflicting evidence, so they video-recorded and interviewed student participants after they had been hypnotised with suggestions for a sex change. The interview included contradicting and confronting questions, like 'what would you say to a doctor if they told you, you were the 'unchanged' sex? and 'what do you see?' when shown the streaming video footage of themselves. Participants were then 'de-hypnotised' and underwent a debriefing, post-experimental interview about the experience.

Of the 36 participants recruited, 94% (34) demonstrated evidence of a sex change, such as providing a new, sex-change appropriate name. Sixty-one per cent (61%) of participants disputed a 'doctor's' claim that their sex had not changed, but only 8% maintained the belief that their sex had changed when shown a live streaming video of themselves. After the experiment, participants reported that it had been 'really easy' to change, and 38% described the experience as involuntary. There were others who recorded unpredictable and unusual responses to the change, such as the participant who reported that the experience felt so real it was "disgusting" (p. 72).

In regards to the doctor question, participants reported that in their mind, the doctor was somehow unable to access the truth, or that sex was about more than just their physical sex. In regards to the streaming footage of themselves, of those who maintained their sex had changed, 19% reported no longer identifying with the person in the images, 22% described cognitive dissonance, and 11% found evidence in the images that confirmed their belief. The researchers concluded that hypnosis was a useful way of emulating delusion.

Shortcomings of Aversive Designs

There are several shortcomings to aversive designs. Firstly, they tended to be physically dangerous to study participants, as well as psychologically harmful. From a scientific perspective however, dangerous, anti-social, and counter-intuitive behaviour are actually common and naturally occurring, which makes it hard to attribute them to hypnosis or consider them a violation of free will. It might be that participants who performed the anti-social acts, for example, wanted to perform them, or at least were comfortable with performing them. The experiments might even have represented an excuse for them to misbehave. It is difficult to prove that hypnosis is the cause of the behaviours.

Control groups are typically the best way to solve matters of causation. By comparing participants who receive hypnosis with participants who do not, evidence about causation can be strengthened. Rowland, for example, recruited 42 additional, unhypnotised participants as a control in his study of instructing people to touch a snake. He reported that when asked, 41 of these participants "were not only badly frightened at the appearance of the snake, but would not come close to the box; only a few were persuaded finally to pick up a yard stick and try to touch the snake." (1939, p. 116-117). Intriguingly, the sole control participant who did boldly reach out and attempt to touch the snake did so, she reported, because 'it was an artificial snake'. According the Rowland, she responded very differently when she was assured the snake was real.

It may have been a response like this that inspired Orne's simulator studies (1959/2006). As mentioned above, participants instructed to simulate hypnosis typically did so by abiding suggestions. One of Orne's early simulator studies was a replication of Rowland's design (Orne & Evans, 1965). The researchers recruited 12 participants: 6 to be hypnotised as per the usual, and 6 to simulate hypnosis, in order to identify whether there were any behavioural differences between being hypnotised and simulating hypnosis. The results were compelling: simulating participants performed more dangerous suggestions than hypnotised participants. This provided evidence that challenged the meaningfulness and value of hypnotic behaviour. Orne and Evans concluded that hypnotised participants were probably not acting against their will, but performing the dangerous acts because they held an underlying assumption that any act completed in an experimental context or setting would be safe and controlled. They were unable to think of any dangerous task that participants could safely do in an experiment without this assumption, and concluded that the ability of hypnosis to

induce dangerous acts might be unfalsifiable. Orne and Evans (1965) also included a control group, in addition to their real and simulating hypnosis groups. In contrast to Rowland, they found that even participants who were not hypnotised or simulating hypnosis were likely to perform some dangerous acts. Aversive designs are now seldom seen in hypnosis research.

3.2.2 Hypnosis cannot alter Free Will

The simulator experiments undermined the aversive design paradigm and state theories in general. If what could be achieved with hypnosis could be achieved without it, there was evidence it did not exist at all. Theorists who advocated the usefulness of hypnosis argued that it was not problematic for different processes to arrive at the same result, but momentum shifted away from the theories that hypnosis could alter free will, and new designs were sought to explore the effects of hypnosis generally, and support the retention of free will during hypnosis.

Counter-suggestion Designs

To address the topic of free will, some researchers adapted an old experimental design: the counter-suggestion design. It involved giving study participants instructions to resist hypnotic suggestions, usually before the hypnosis was undertaken. If the participants performed suggestions despite the instruction, the power of hypnosis was considered powerful enough to counter-act free will. If a participant successfully resisted the suggestion, the opposite was true: hypnosis could not counter-act free will. This design was safer and more ethical than aversive designs.

Young (1927) was one of the first to employ the design. He recruited four (4) volunteers, and conducted a series of hypnosis experiments with them. Young aimed to test the significance of rapport during hypnosis. He believed rapport, not altered consciousness, was the key to successful hypnosis, and wanted to know if rapport could

occur without suggestion for it, or could rapport be switched-off by a participant during hypnosis? He also wanted to know what role expectations played.

In one of his experiments, Young hypnotised participants to determine which suggestions they would complete and, after bringing them out of hypnosis, asked them to nominate one suggestion to try and resist. The participants were to write the suggestion on a piece of paper for proof, before Young attempted to induce all previously completed suggestions again, unaware of which one the participants were trying to resist.

In his first experiment, Young attempted to re-hypnotise a participant who had elected to be awoken by the chimes of midday and not to re-enter trance. After the midday chimes, Young could not re-hypnotise the participant, despite his best attempts, and the participant subsequently left for his appointment on time. In this instance, free will had been more 'powerful' than hypnosis.

Another of Young's participants wrote on a piece of paper "…I will obey all commands except that of becoming insensible to pain" (p.133). He reported that the participant "winced considerably" when "stuck … with a sharp skewer" (p. 133), when he or she had previously achieved analgesia to such pain. Young's third participant selected eye-closure, which Young could not induce, despite his best efforts.

During the final sequence of testing, Young employed a researcher trained in hypnosis to 'coach' his participants in resistance, or what they called 'self-hypnosis'. The researcher gave participants waking suggestions to counter the hypnotic suggestions made by Young, who again attempted to induce all previously completed hypnotic responses. The result was the same; Young could not make his participants complete the suggestions they had selected to resist. He attempted eight combinations of this sequence in total, and the results were the same every time. Young concluded not only

that resistance or 'self-hypnosis' was more powerful than hypnosis by someone else (hetero-hypnosis), but that the 'self' is more powerful than the influence of the experimenter/hypnotist.

> It is usually easier to get hypnotic results if the (participant) is cooperative in the sense of not being openly defiant in his (or her) resistance. But all (participants) resist to some extent, or at least they are asked to do so. (Wells, 1940, p. 265)

Wells (1940) also adopted the counter suggestion design. He was not convinced by Young's findings, since his own experience suggested hypnosis was capable of coercing responses. He retested Young's findings with 16 of his own students, all males judging by the language he uses in the journal article. Like Young, Wells hypnotised participants and had them complete a selection of suggestions before instructing them to resist a suggestion of their choosing.

Like Young, Wells asked his participants to write down the suggestion they intended to resist before the procedure, as well as the outcome that they were expecting. Participants were obviously not allowed to alter their prediction after completing the experiment, nor did Wells have access to their selected suggestions or expectations until after the experiment. He had no way of knowing which suggestion they were attempting to resist.

Wells employed a range of strategies to ensure the hypnotic suggestions were completed: if a participant did not complete the suggestion with the initial suggestion, he would alter the suggestion to make it more unilateral. For example; when one participant could only achieve amnesia for his surname and not his entire name, Wells suggested amnesia for each letter of the alphabet. After this additional suggestion, the participant failed to recall his name.

Wells reported producing hypnotic responses in all of the participants. No participant could resist hypnotic suggestions made by Wells, even when they expected to be able to, and most (10 of 16) of them had expected to be able to do so. The results led Wells to conclude that "helplessness of the (client) is an essential feature of hypnosis" (1940, p. 271), and that "failures to get the best results are due to inadequacies in the operator's art of hypnotizing" (1940, p. 268). He was unable to reliably predict the participants' 'item of resistance'; he only successfully identified 5 of 16. To this extent, it was not obvious to Wells when his participants were resisting and when they were not.

Wells' conclusions were clear: hypnosis, when performed competently, induced helplessness and counter-acted the will of the participant. His results directly contrasted with those of Young, who had concluded that it was the self that was more in control than the hypnotist. Wells argued that the hypnotist could control the participant.

There were shortcomings in Wells' work, which he acknowledged. There is reason to believe that his participants may have felt pressured to perform. They were literally his own students, not randomly selected students from the university. He stated that the failure of hypnosis could only result from two factors: the inadequacy of the hypnotist, and the "failure to select sufficiently good" participants (1940, p. 261). He only recruited participants with high hypnotizability scores. This limits the generalisability of his work and, in the light of motivation and role studies, it might be argued that Wells' work reflects social, rather than hypnotic, influence.

> Although you will be as hypnotized as you were before, it may be that you will be able to make some decisions affecting what you do, *even* in the midst of hypnosis.

> We do not know whether or not you will be able to do this; whether or not you can is what we're trying to find out. (Hilgard, 1963, p. 5)

Hilgard (1963) openly criticised the results of both Wells and Young, and proposed his own counter-suggestion experiments. Hilgard believed that the truth about hypnosis was somewhere between the opposing findings of Young and Wells. He wrote "Surely there is no simple answer to the question: "Can [a] hypnotised [participant] resist suggestions?"" (1963, p. 5).

He designed an experiment in which participants (6 male, 6 female) were trained in hypnosis, then familiarised with the study design, and then instructed to resist two non-consecutive suggestions of their choosing, shortly before undergoing a session of hypnosis.

Hilgard found that 6 participants resisted both of the hypnotic suggestions that they were given, 5 resisted one out of the two, and 1 participant was unable to resist either of the two suggestions given during hypnosis, despite receiving the instruction to resist. In other words, half of the participants could resist both suggestions, and half were unable to resist at least one of the suggestions despite the instruction to resist.

Hilgard was primarily concerned in the overall score however, such that 17 of 24 suggestions had been successfully resisted: a ratio that he was compelled by. He concluded that "some control within hypnosis is amply attested" (1963, p. 13).

Hilgard acknowledged that "the communications between the hypnotist and the (participant) are very complex" (1963, p. 13), but argued that while hypnotised, people retain control (free will), but they are not consciously aware of this. This position is incompatible with a definition of free will that involves conscious control, such as Wegner's. According to Hilgard, however, it is still the participant who is in control somehow.

Hilgard also collected qualitative data in the study, recording interviews with each participant about their experience. Reported experiences were inconsistent. Some participants stated that they did not feel as though they could resist despite trying, some stated that resisting was effortful, some stated that it required a strategy, and others stated that the effort required to resist "broke the spell" of hypnosis (1963, p. 10). One participant reported feeling upset for failing to resist, a response that supports the theory that participants are motivated to please researchers.

Hilgard classified the experiences of resistance into four categories: resistance by sheer effort, resistance as appropriate, resistance by hypnotic self-suggestion, and resistance by deliberately ignoring or limiting attention to the hypnotist. Although his samples were too small for meaningful statistical analysis, he believed that 'sheer effort' was the most successful strategy for resisting suggestion. Hilgard made another interesting observation: participants who demonstrated the attitude "if somebody tells me that I can't do something, I always try and prove that I can" were more likely to experience hypnotic phenomena (1963, p. 11). He believed that these participants had reasoned that anybody can perform actions like raising or lowering their arm, but apparently not everybody can be hypnotised, therefore it is a challenge for me to be hypnotised.

There are some problems with Hilgard's research. His results were hardly comprehensive: half of his participants failed to resist one suggestion, despite the instruction to do so. He also only had 12 participants. Aside from Hilgard's results though, there are some other shortcomings in his actual design.

The first is that it might be unclear when the waking instructions end and the hypnosis begins. The instructions for resistance were similar to the hypnotic script. Participants were told,

> You will be hypnotized the usual way, first with a suggestion in the waking state, and then hypnosis induced through eye fixation and eye closure. Please cooperate fully through this phase of the experiment, permitting yourself to become as hypnotized as you can. (Hilgard, 1963, p. 6)

The nature of the language and ideas expressed resemble a hypnotic script. In a sense, the hypnosis had already begun. Inviting a participant to 'permit themselves to become hypnotized' is a common hypnotic suggestion, for example. For this reason it is hard to know whether the participant is resisting hypnosis or simply following an earlier hypnotic suggestion.

Hilgard included strategies to overcome this problem. He pre-tested participants for the study on a separate day from the experiment itself, and employed a separate research assistant to deliver the instructions for resistance, for example. However, the line still appears blurry.

Hilgard's instructions may have also exacerbated the known tendency of participants to try to please researchers. Hilgard's 'instruction for resistance' script stated "We would like you to...", "The decisions we want you to make…", and "We would rather…" (emphasis added), each spoken in the space of a few short paragraphs, and emphasising what the researchers would like. Hilgard balanced these instructions with statements such as "We do not know whether or not you will be able to do this" (1963, p.6), however statements such as those above could prime participants to become conscious of the purpose of the experiment and the desires of the researchers, which may already have been heightened in an experimental context. As a result, Hilgard may have simply been testing the ability of suggestions to compete with one another, or the motivation of participants to please him.

Despite these and other criticisms (Kirsch, 2005; Zamansky & Bartis, 1985), Hilgard's research is often cited as the primary evidence that free will is retained during hypnosis (Lynn, Rhue, & Kirsch, 2010).

Researchers later revisited Hilgard's findings with Orne's 'simulator' design (Lynn, Nash, Rhue, Frauman, & Stanley, 1983). They recruited 35 participants (14 male, 21 female), measured their hypnotisability, and then instructed them to resist hypnotic suggestions. Then, participants underwent a session of hypnosis, performed or resisted suggestions, and an independent scorer rated the extent to which they completed suggestions (a strategy used inconsistently by hypnosis researchers). The researchers also collected some interview data after the hypnosis.

The researchers found that 34% of hypnotised participants did perform hypnotic suggestions despite the instruction not to, and only 7% of simulating participants did. In other words, simulators overwhelmingly honoured the instruction to resist suggestions, as opposed to hypnotised participants who frequently did not.

In addition, the interview data corroborated the fact that hypnotised participants had experienced involuntariness differently from simulators. For example, in the interview after the experiment, a simulator reported "The hypnotist said we could not go along with the suggestions, so I didn't do anything", whereas a hypnotised participant reported "I remember the hypnotist saying do not actually do it, but I couldn't restrain myself from going along with the suggestions" (Lynn et al., 1983, p. 301). Somewhat like Hilgard, Lynn et al. found virtual equivalency between participants not moving (37%), partly moving (29%), and fully moving (34%) in response to suggestions to move, despite the instruction not to. The conclusion could not be avoided: the differences between hypnotised participants and simulators may not be

accounted for only by role-demand characteristics, but may reflect true differences in free will between participants playing and being hypnotised.

Lynn et al. (1983) suspected that hypnotised participants might have been especially attuned to the desires and expectations of the hypnotist more than the simulators, rather than there being any actual differences in their hypnotic ability, or the instructions they had been given at the beginning of the study. So Lynn led a similar research team in a project to explore the role of expectations in the counter suggestion design (Lynn, Nash, Rhue, Frauman, & Sweeney, 1984). The experiment manipulated the expectations of participants, to see if this would consistently and measurably alter hypnotic responding. Participants (13 male, 36 female) were divided into groups determined by their responses to a hypnotisability scale: once into hypnotised and simulating conditions, and again into moving and resisting conditions. Participants in moving conditions were primed with information that "good hypnotic participants are *able* to resist hypnotic suggestions when instructed to"; Participants in the resistance conditions were told the opposite: "good hypnotic participants are *unable* to resist" (1984, p. 297). Participants were then hypnotised and, to complicate the matter, given the following instruction for resistance *during* hypnosis

> Listen as intently and carefully as you can, but be sure not to act on any of the suggestions. So, even if I suggest that you do something, you will not do it. Just think and imagine along with the suggestions, but do not actually take any actions or engage in any of the behaviours that I suggest until I give you instructions to come out of your trance. The important thing for you to remember is that you can think and imagine along with what I suggest, but do not actually do anything I suggest you do. (Lynn et al., 1984, p. 298)

This instruction complicated which suggestion the participant might perform. The construction of the sequence is less representative of free will than it is of decision-making: participants are essentially choosing whose suggestions to follow. Nevertheless, the results were revealing.

Hypnotised participants who were told the inability to resist suggestions was indicative of 'good' hypnotisability recorded the most movements during hypnosis, despite the instruction not to. Simulating participants given the same information on the other hand, recorded fewer movements: a number similar to hypnotised participants who had been told the ability to resist was indicative of good hypnotisability. Simulators told the ability to resist was indicative of good hypnotisability moved the least although, unexpectedly, were still observed moving in some cases.

The first group, hypnotised participants told the inability to resist was indicative of good hypnotisability, provided the richest qualitative information. They referred to non-volition (involuntariness), sensation, and conflict, the most in post-experiment interviews about the experience. Researchers found that participants who scored higher for rapport were more likely to accept hypnotic suggestions and neglect their priming, whereas those with lower rapport were more likely to follow their priming. This result, again, fits with motivation-oriented, non-state explanations of hypnotic responding.

For Lynn et al., the results were quite clear: although there was evidence that hypnotised participants were completing suggestions despite the instruction not to, their behaviour and experience was largely determined by their expectation of hypnosis: by the information they were primed with. The researchers argued that if you told someone they could resist, they were more likely to, and if you told them they could

not, they were less likely to. As Lynn et al. noted, this was strong evidence for role and motivation theories of hypnosis and, combined with other research and analyses, led them to the final and paradigm-defining conclusion that "participants retain the ability to control their behaviour during hypnosis, to refuse to respond to suggestions, and even to oppose suggestions" (Lynn & Kirsch, 2004, p. 33). They called for further research, and noted the importance of qualitative, experiential data.

Spanos led another research team interested in the counter suggestion paradigm, whose experiments also involved not only priming participants with information about ability or inability to resist, but also the direction of the suggestion (Spanos, Weekes, & de Groh, 1984). They designed an experiment that tested whether participants could be given the suggestion to perform the opposite of the suggestion they had been given. The instructions from their study were

> … I am going to give you two more suggestions similar to those you just received. This time, however, you will notice that something new and interesting will happen. Instead of your overt response occurring in line with the suggestion, your arm will move in the opposite direction. For instance, when you get the suggestion that your arm is heavy and being pushed down by lead weights, you will imagine weights pushing down your arm. Despite this, your arm will actually rise than lower. (Spanos, Weekes, et al., 1984, p. 6)

The researchers recruited 16 participants (11 female, 5 male), divided them randomly into two equal groups (experiment and control), and gave the experimental group the extended and complete version of the above suggestion during a session of hypnosis. They scored responses to these suggestions on a 4-point scale: 0 meaning no movement, through to 3, meaning movement of 12 inches or more. Participants were also asked to complete a brief survey about their expectations subsequent to the session

of hypnosis, and describe what they believed the purpose of the experiment had been. The researchers found that participants could perform opposite-suggestions or demonstrate arm elevation in response to the suggestion that lead weights were being placed on it. As expected, participants who did not receive the opposite suggestion demonstrated arm lowering.

In the process however, the experiment resulted in some experiences that even the researchers had difficulty explaining. For example when asked about how the hypnosis had gone, one participant in the experimental condition described how heavy her arm had felt, and that it had lowered, when in fact the researchers had observed it going up. Several of the experimental group participants demonstrated similar outcomes, reporting 'experiencing' sensations as per the suggestions such as for heaviness, even though their actual movements had indicated otherwise. There were also strong correlations between what participants had believed the purpose of the study to be and their results. For example, participants that demonstrated arm elevation during suggestions for arm lowering, commonly believed that the purpose of the experiment had been to demonstrate this, and the same was true of the non-experimental group. They believed that the purpose of the experiment had been to show that suggestions for arm lowering would result in arm lowering, for example. This was further evidence of role and motivation explanations of hypnosis in general, and according to Spanos et al., the preservation of free will during hypnosis as well, since participants were presumably electing to fulfil the researcher's expectations. This research also reiterated the importance of qualitative data in hypnosis research.

To validate the evidence of Lynn et al. (1984), Spanos designed another experiment that aimed to clarify the relationship between pre-hypnosis priming and hypnotic responding (Spanos et al., 1985). In the experiment, Spanos included three

conditions instead of two. Where Lynn and colleagues had divided participants into groups who received information that 1) resistance was possible and 2) not possible, Spanos made a third group of participants who received ambiguous information: "I do not know whether or not you will be able to do this… Whether or not you can is what I am trying to find out" (Spanos et al., 1985, p. 286). Spanos wrote that he had modelled them on Hilgard's instructions. The researchers recruited 44 participants and divided them randomly and evenly between each of the three conditions, and a fourth, control group. After preliminary information, and before the hypnosis, participants received their priming information. For an unmentioned reason, the nature of the language (not just the meaning) was slightly different between the conditions: 'resistance impossible' participants were instructed, "I *would like* to you to try and resist each suggestion… Some [participants] become so deeply hypnotized…", whereas 'resistance possible' participants were instructed "I *want* you to see if you can become so deeply hypnotized" (1985, p. 286).

In line with their hypotheses, and the results of Lynn et al.'s (1984) research, Spanos' team found more evidence that when participants were primed with information that the ability to resist suggestions denoted deep hypnosis, they would resist. They resisted the vast majority of suggestions (42 out of a possible 44) given to them.

This group also reported the lowest experience of involuntariness, but there were otherwise no meaningful or significant differences in their experience of the experiment compared with groups who had been primed with different information. Two participants in this group did fail to resist a suggestion, which meant that on two occasions (only two) participants who had been told that they were able to resist, that it was good to resist, and were instructed to resist, failed to resist the hypnotic

suggestions given to them. This obviously represents a smaller, but not trivial portion of the participants in this group: 2 of 11, or 18%. This is compounded by the results of other groups, however: when the inability to resist and ambiguous groups were combined, 60 of 88 suggestions were performed despite the instruction not to. Surprisingly to Spanos et al., this was higher than the control group, who had not received any instruction to resist.

The studies by Spanos and his team always had enough participants to make their results generalisable. However, as with other counter suggestion studies, it is unclear where the instructions end and the hypnosis begins. Is it when the hypnotist begins talking? Or when the participants enter the experimental context? In this study, instructions for resistance were followed immediately by the experimental hypnosis.

While it is clear from Spanos et al. (1985) that when resistance is scripted for participants, they are likely to resist, the opposite is also true. When participants are told that being unable to resist is a mark of deep hypnosis, they are unable to resist. This may mean that if clients are not advised that they have free will, they are unlikely to exercise it.

Counter-Motivation

Baker and Levitt (1989); (Levitt & Baker, 1983) were not convinced the hypnosis-free will issue was resolved, describing it as "relatively uninvestigated" (1983, p. 126) and arguing that existing evidence was "unrevealing" (1989, p. 145). They found the Hilgard (1963) studies to be ambiguous, his results equivocal, and believed they knew a way to make the results more conclusive. They modified the counter suggestion design and conducted two studies, before later joining with Fish (1990) for third and fourth experiments.

Levitt and Baker understood that participants in experimental contexts were motivated to please their experimenters or hypnotists, so they needed to add motivation or an incentive to resist suggestions, to counter the tendency to please. They settled on a "strong motivator in American society": money (1989, p. 151). Since they believed that participants were motivated to please researchers and hypnotists, they also believed it would be useful to record their opinions of hypnotists and researchers, and analyse these data in their results.

In their first study, Levitt and Baker conducted an experiment like many others in the counter-suggestion paradigm: 20 (12 female, 8 male) volunteer participants were assessed for hypnotic susceptibility, before a separate, independent 'resistance instructor' (research assistant), instructed them to resist further suggestions. The resistance instructor also offered each participant a $5 incentive per suggestion to resist each of the two, relatively simple suggestions (arm levitation and head nodding).

The results were similar to those of Hilgard (1963): 9 participants successfully resisted both suggestions, 5 did not resist either, and 6 resisted one but not the other. In other words, more than half of the participants failed to resist at least one suggestion, despite the incentive of $5 to do so. When the researchers examined the interview data, they found a theme Spanos and his colleagues had encountered: the language mattered. Participants made particular reference to two terms used by the resistance instructor to incentivize resistance: disloyal and betrayal. According to the researchers, these terms reflected badly on the resistance instructor, and made accepting his offer less appealing.

Although intrigued by this, the researchers were convinced a different design problem was limiting the resistance they were achieving. They believed the participants were hedging their bets about how to behave appropriately by resisting one suggestion and performing the other. They addressed this in their second experiment by offering

only one chance to resist, and increasing the incentive to $10 per suggestion resisted. The researchers recruited 20 male and 20 female participants and assessed their hypnotisability, before having the resistance instructor propose the new offer. The researchers deliberately noted that their "offer was carefully framed as an incentive, not a suggestion" (Levitt & Baker, 1989, p. 147), unlike many previous studies.

It is important to acknowledge that participants remained hypnotised while they were offered the incentive, however, potentially blurring the role of consciousness in the supposedly free decision-making process and undermining the validity of the design. Note also that researchers did not include the incentive script in their published article since, perhaps, the dialogue was improvised on each occasion. If this is the case, it is a problem: non-standard procedures introduce new, uncontrolled, unmeasured variables into the study. If different participants received slightly different interventions, the results are less valid.

In either case, the results were again equivocal: Only 19 of 40 participants (less the half) successfully resisted a single suggestion in return for a financial gain. Or, in other words, 21 participants were offered $10 to resist a single suggestion, but performed the suggestion anyway. There was no significant difference between resistors and non-resistors, nor in their impressions of the hypnotist and the resistance instructor.

Baker and Levitt then worked with Fish, and extended their research on 'counter-motivation' counter suggestion, publishing a third paper, with two sub-studies (1990). The researchers employed the same procedure with minor modifications. In experiment three, the resistance instructor spent more time with participants, in order to develop rapport, and correct the bad-guy reputation. The researchers also took turns playing hypnotist and resistance instructor, to rule out any personality factors between

them. They recruited 15 male and 15 female participants, began assessing their hypnotic susceptibility and, during hypnosis, had the resistance instructor offer each participant $10 to resist a single suggestion. With these adjustments, the researchers saw an increase in resistance. Twenty (20) of 30 (66%) participants successfully resisted a single suggestion in return for a financial reward. Extra time with the participants had significantly improved reported regard for the resistance instructor. The inverse of the result was also true: 33% of participants still failed to resist a single suggestion when offered $10 to do so.

Spurred by their improved success, Levitt, Baker, and Fish conducted a fourth and final experiment. They argued their results might have been confounded by hypnotic susceptibility since the participants who had successfully resisted suggestions were also the participants with the lowest score for hypnotic suggestibility. They recruited 12 participants (6 male, 6 female) who had scored relatively highly for hypnotic susceptibility to control for this. They also employed new hypnotists and resistance instructors, and instead of offering $10 to resist one suggestion, they offered $100. Apart from these changes, the experiment followed the same procedure.

Six (6) out of 12 participants successfully resisted hypnotic suggestions, and duly received their $100. Surprisingly, the remaining participants (n = 6) performed the single hypnotic suggestion, despite instructions and a $100 incentive. The reward, $100 in 1990, would be equivalent to $196 in 2016. Apart from being amazed and perplexed by these results, the researchers could not identify any significant differences between resisters and non-resisters: they were equally susceptible, and their perceptions of the hypnotist and resistance instructors were not significantly different.

Levitt et al. (1990) ultimately concluded that hypnosis is truly coercive for participants with high suggestibility, and at least reasonably strong for people with

moderate suggestibility (p. 234). They also concluded that relational factors, such as the rapport between the hypnotist and the participants, are significantly influential, particularly amongst participants who do not demonstrate high hypnotisability. According to the researchers, the stronger the rapport, the more influential the hypnosis. The 1990 article was featured in the *American Journal of Clinical Hypnosis*, and drew reviews from several esteemed peers who both supported the research, but also criticised its small samples and confounding variables (Coe, 1990; Lynn, 1990; Perry, 1990; D. Spiegel, 1990; Weitzenhoffer, 1990).

3.3 Other designs

There have been other experiments designed to understand the relationships between free will and hypnosis. For example some researchers have considered hypnotic behaviour to be a version of obedience (Hunt, 1979; Werbel, 1998), and rather than testing it, others have collected qualitative data about the experience of it.

Hypnosis as Obedience

Hunt (1979) was one of the first to consider hypnotic behaviour as a product of authority. She wrote that the hypnotic context was suitable for obedience since while hypnotised participants are concentrating

> …on the task, paying attention to instruction… [and] in a state of partial sensory deprivation, with minimal kinesthetic feedback and no vision. The only sound is the voice of command. Under these conditions the relinquishing of control for one's actions becomes easier. (Hunt, 1979, p. 22)

Hunt designed an experiment in which she manipulated the 'binding' and 'straining' factors of the hypnotic context, as per the (Milgram, 1963, 1974) model of authority. Forty (40) participants (21 female, 19 male) were randomly and evenly divided into three experimental groups that varied according to behaviour of a

confederate participant. In one group the confederate would obey the hypnotist, the next would disobey the hypnotist, the third would initially disobey before ultimately acceding to the hypnotist, and there was also a fourth, control group with no confederates.

As she had hypothesised, Hunt found some evidence that hypnosis does consist of obeying authority. The group in which the confederate openly disobeyed the hypnotist achieved a significantly lower level of hypnosis. Although no participant in this group joined the confederate in leaving, 6 did not demonstrate any further hypnotic phenomena after the confederate's departure. Hunt concluded that hypnosis is "an agentic state whereby the [participant] gives up autonomy and relinquishes responsibility for his or her actions to the hypnotist, whilst remaining responsible to the hypnotist for his or her performance as a hypnotic subject" (Hunt, 1979, p. 21).

Hunt conceded that her results could alternatively be explained by the act of the confederate leaving as a disruption. After completing the experiment, Hunt realised that the shift in the 'quality' of the hypnotic trance after the departure of the confederate may have been attributable to the literal noise and disturbance of their departure, rather than any shift in the social dynamic of the experimental context.

Later Werbel (1998) too examined the relationship between hypnosis and authority. Although it is broadly considered that Freud 'did not believe in hypnosis', there was a time when he had considered highly enough of it to develop his own theories about it and Werbel was interested in these; namely counter-will. As per Freud, Werbel argued that hypnosis fatigued participants, exposed them to exaggerated markers of authority, thereby making them more prone to suggestions. He tested his hypothesis with a 2 x 2 experimental design: fatigue/non-fatigue, and authoritarian/non-authoritarian style hypnosis were the variables. In non-authoritarian

conditions, participants received a friendly introduction with passive language from a hypnotist who was dressed casually and presented as friendly. In the authoritarian conditions, instructions were more severe, and the hypnotist wore a lab coat, dress-shirt, and tie. The authoritarian hypnotist also 'loomed' over the participant before and during the hypnosis session, as opposed to the non-authoritarian hypnotist, who sat across from the participant at an angle. Werbel provides an example of authoritarian-style script, taken from Freud:

> Keep still. You have promised not to talk. Of course I know that you are not "asleep"; nor is that in the least necessary. What would have been the sense of my simply making you fall asleep? … You are not asleep, but you are hypnotized, you are under my influence; what I say to you now will make a special impression on you and will be of use to you. (Freud in (Werbel, 1998, p. 15).

Werbel recruited 60 male volunteers and allocated them randomly and evenly to the four conditions. He hypothesised that the best hypnotic candidates would be fatigued participants in the authoritarian groups, and this was supported. He also hypothesised and found, that non-fatigued participants in the non-authoritarian group would complete the least. He concluded that the authoritarian style of hypnosis produced the greatest hypnotic efficacy, which provided another endorsement for hypnosis as authority.

Despite these findings, the relationship between authority and hypnotic efficacy did not receive much more attention until a group of Harvard students tested whether hypnosis involves lying or complying (Kinnunen, Zamansky, & Block, 1994; Kinnunen, Zamansky, & Nordstrom, 2001). "I'd like you to try hard to concentrate and try to

experience as many suggestions as you possibly can. Try to relax and 'let go'. Is that ok with you?" (Kinnunen et al., 2001, p. 92).

Kinnunen et al. were interested in the role of compliance in hypnotic behaviour. They wanted to know whether the compliance extended beyond the production of behaviours and into the production of phenomena and experiences, such as involuntariness. To test this, the researchers measured skin conductance response (SCR) with a lie detector (also known as a polygraph), to determine whether participants lied when asked about their experience of hypnosis. They devised an experimental process that carefully elicited participants' hypnotisability, reported experience of hypnotic suggestions, and the propensity for lying. In regards to their hypnotic experience, they would ask participants questions like "During hypnotic suggestion were you unable to bend [your arm]?" (2001, p. 86). By doing so, they were able to compare a physiological measure of 'truthfulness' (SCR) about hypnotic experiences with the truthfulness of answers on which they had been instructed to lie, and assess the differences. The researchers also exerted some coercion on participants to be hypnotised by expressing surprise that during the first part of the study they had not experienced more hypnotic phenomena (irrespective of how they had responded), and urged them to 'try harder'.

The researchers recruited a sample of 30 moderately hypnotisable participants (18 female, 12 male), but eventually excluded 16 for a range of reasons such as their hypnotic ability and propensity for lying. The remaining 14 participants were asked additional questions and urged to 'try harder' in remaining tests of hypnotic ability, before having their SCR measured.

Kinnunen et al. (2001) found that urging their participants to try harder worked: participants completed 88% of hypnotic suggestions after being urged, compared with

48% before. In addition to this, answers to questions about the hypnosis after the urging were less honest than those before. In other words, when reporting whether they had experienced hypnosis after being urged to comply, participants lied and said they had.

Although participants had already completed several suggestions before being urged to complete more, Kinnunen et al. argued that they had discovered physiological (e.g. SCR) evidence that even hypnotisable participants (non-simulators) 'embellish' their experience of hypnosis when prompted to.

Embellishing or lying is complicated in hypnosis. In a study mentioned above (Spanos, Weekes, et al., 1984), participants reported experiencing the opposite of the suggestions they were given: arm levitation despite the suggestion for lead weights on their arm. Were these participants lying when they reported experiencing their arm lowering? It might be the case that motivation and social pressure form a complex network of factors that facilitate hypnosis, which do not interact in linear relationships.

Ideomotor Designs

A team of researchers led by Haggard examined the experience of free will during hypnosis, rather testing it *per se* (Haggard, Cartledge, Dafydd, & Oakley, 2004). Instead of instructing or priming, study participants were asked to describe their experience of different versions of Libet's button-pressing design. Haggard and his team designed an experiment in which participants would compare the experience of voluntarily pressing a button with the experience of being made to press a button by a purpose-built, experimental device. The experiences of these two conditions were compared with a third condition: hypnotically suggested, automatic, ideomotor button pressing. The researchers used a digital version of Libet's clock technique to identify and compare when participants were experiencing the free will. Since they believed an

alteration in consciousness would result in an alteration in experience, the researchers hypothesised that hypnotised button pressing would most closely resemble the feeling of being forced to press the button by a contraption.

Haggard et al. (2004) recruited 12 university students (9 female, 3 male), and attached the specially designed contraption to them, allowing experimenters to 'make' the participants' fingers press down on the button by pulling a hidden string. Each participant completed each of the 3 conditions (voluntary, involuntary, hypnotised), while watching the digital clock face. The hypnosis condition contained three sub-conditions: voluntary, contraption-forced, and suggested involuntariness, so that each hypnotic condition could be compared with a non-hypnotic condition. They were instructed to mark on a scale whether they had voluntarily chosen (one end) or been made to move (the other), and used the moving clock face to indicate when this had taken place.

Haggard and his team found that hypnotised conditions were not significantly different from the non-hypnotised equivalents, and scores on the voluntariness scale were equivocal. The same was true for timing: participants were 'anticipatory' when estimating when voluntary action took place, and 'reactive' in the forced and hypnotised movement conditions.

The findings suggested that the hypnosis condition was most like the forced-movement condition. Haggard et al. (2004) reported that their results supported the dissociation of voluntary action and conscious experience during hypnosis. They concluded that the experience of free will could be manipulated or excluded from conscious awareness during hypnosis.

The ideomotor design has its own shortcomings. Much like counter-suggestion designs, participants were asked to press a button. Although this is aligned with Libet's

experimental definition of free will, (i.e., it is endogenous), it has no inherent value. It is meaningless, and while this is important for isolating the intention in consciousness, it does not reflect free will accurately. Free will needs to be something desired, something willed, and more than arbitrary. Understanding the relationship between free will and hypnosis might benefit from different interpretations of free will in their testing of it.

Summary

The prevailing research design for the relationship between hypnosis and free will is the counter-suggestion design. The design blurs the line between instruction and suggestion. The features of the counter-suggestion instructions are often similar to those of the hypnotic suggestion, and are administered in the same setting, albeit by a different experimenter. There is a sense in which the counter-suggestions could be considered part of the hypnosis.

The most reliable outcome from a counter-suggestion study occurred when participants were advised they were 'able' to resist, but had already completed several hypnotic items, and were still 'comfortably seated' when they were given this information. Were they still hypnotised? If they were not, does resistance and therefore control only exist if and when clients are told it does?

More importantly, the results from this design can be inconsistent and unreliable. They typically result in a portion of participants, albeit fewer, who fail to resist hypnotic suggestions. This was the case even when participants were offered $100 to resist a single hypnotic suggestion. This has significant implications for the legal and ethical practice of hypnosis, and suggests that hypnosis could counter-act free will, depending on what is said. It might also suggest that free will is a relatively weak and manipulable phenomenon.

There is another problem for the counter suggestion design: instructing participants to resist a suggestion is surely different to the uninstructed, organic, endogenous resistance of free will. There is a vast difference between being instructed to stop smoking, and not wanting to smoke, for example. Arguably, being instructed to do something is the very opposite of freely choosing or intending to do it. As such, replicating a truly free action in a laboratory is difficult. Libet wrote,

> …there should be no external control or cues to affect the occurrence or emergence of the voluntary act under study; i.e. it should be endogenous… [and] the [participant] should feel that he/she wanted to do it, on her/his own initiative, and feel he could control what is being done, when to do it or not to do it. (Libet, 1999, p. 47)

As Passingham and Lau wrote,

> …the goals of action are set in the laboratory by the instructions given, [but] in the everyday world they are set by the goals that people set for themselves. The sorts of decisions over which they deliberate are not when to make a random finger movement. The decisions are ones that have consequences. These decisions require the integration of all the relevant information about the current context, the alternative possibilities and the costs and values associated with them. (Pockett et al., 2009, p. 68)

By these terms, the counter-suggestion design does not test truly free or conscious will.

Beyond the counter suggestion design, other newer designs have revealed further complications and confusion about the relationship between hypnosis and free will. Hypnosis might be harnessing authority and obedience, and even when it is not, hypnosis feels like it is controlling, whether it is or not. The problem of free will in

hypnosis might benefit from a new experimental design, which uses an organic free will, intention, action or behaviour, not an experimentally induced or instructed one. This intention or action or behaviour would need to not be scripted, and it would need to not be complicated by the goals or intentions associated with the experimental setting. Understanding this relationship could improve the effectiveness and uptake of hypnosis as a psychological intervention technique.

3.4 Hypnosis and Behavioural Change

With the emergence of meditation and mindfulness as popular mental health activities, hypnosis has enjoyed a surge in therapeutic use and research of late. It has been used in the treatment of depression (Alladin, 2014; Kirsch & Low, 2013; Yapko, 2010), post-traumatic stress disorder (Kwan, 2009), and insomnia (Abramowitz, Barak, Ben-Avi, & Knobler, 2008; McCall et al., 2011). It has been used for analgesia and pain management (Derbyshire, Whalley, & Oakley, 2009; Jensen & Patterson, 2014; Valentini, Betti, Hu, & Aglioti, 2013). Hypnosis was commonly used for anaesthesia before the advent of modern chemo-anaesthesia (Chong Tong, 1966), and continues to be used today (Tefikow et al., 2013). The practice has become increasingly popular for childbirth in recent years because, unlike drugs, it has no side-effects on the mother or child (Landolt & Milling, 2011). It has even been used effectively on non-mental health conditions like warts (DuBreuil & Spanos, 1993; Johnson & Barber, 1978), and other skin diseases (Mason, 1994). Apart from these, hypnosis has been used for behavioural change, such as hair pulling (Iglesias, 2003), and, perhaps more importantly, with smoking (Carmody et al., 2008; Casmar, 2002; Dong et al., 2010; Douglas, 1999), which represents one of the biggest health risk factors in the Western world.

Several studies have examined the use of hypnosis to alter smoking behaviour. Carmody et al. (2008) compared the use of hypnosis in conjunction with nicotine

patches against standard behavioural counselling with nicotine patches. They recruited 286 participants (176 male, 110 female) and divided them randomly between the hypnosis intervention (n = 145) and the behavioural counselling intervention (n = 141). Participants in the hypnosis intervention received two 60-minute sessions, which were also audio-recorded for participants to listen to, while participants in the behavioural counselling conditions also received two 60-minute sessions discussing topics such as the dangers of smoking and the benefits of quitting. Participants completed a battery of surveys and questionnaires, which were followed up twice: once 6 months after the intervention and again after 12 months.

Hypnosis with nicotine patches and behavioural counselling with nicotine patches were virtually equivalent in changing smoking behaviour in the short term. After one week, 55% of the hypnosis condition participants had quit smoking, and 56% of the behavioural condition participants had. After 6 months, and with the improved accuracy of biochemical or proxy validity, 26% of hypnosis participants were still not smoking, compared with 18% of the behavioural condition participants: a difference that was not statistically significant, however.

The researchers found that the severity of nicotine withdrawal symptoms was significantly lower in the hypnosis group, but that they were prone to reporting higher quitting rates that was actually evidenced by their saliva samples.

The findings were typical of most hypnosis interventions for smoking: it does have an effect on behaviour, but usually only an effect equivalent to other cognitive-based interventions. Dong et al. (2010) found as much when they conducted a meta-analysis of hypnotic smoking intervention research, which included the study of Carmody et al. (2008). The researchers examined eleven studies in total, with a

combined sample of 1120 participants. Despite this high number they had trouble comparing the studies, because of the marked differences in methodologies.

The compared studies had different numbers of sessions, different formats (e.g., 1 on 1 vs. group), and distinct durations. For example, one study involved a single session of hypnosis, while another involved eight-hours worth. Some studies also involved combinations of interventions, and compared results with other interventions or placebo/waitlists. The researchers ultimately decided that these differences made the studies too difficult to compare, and that therefore there was insufficient evidence to reach conclusions about the efficacy of hypnosis for smoking cessation. They also wrote "Encouraging results reported in [some] studies may be due to the motivation of those presenting for treatment, or may not reflect likely long-term success or drop-out rates", and that there is a need for further, larger, clearer studies of the intervention (Dong et al., 2010, p. 8).

Findings like these leave hypnosis advocates and practitioners in a difficult position. There is evidence that it can achieve behavioural change, but not necessarily more than other, similar interventions. What is hypnosis doing? And how? As Carmody et al. noted, the "mechanisms underlying the utility of hypnosis" are (still) unclear (2008, p. 816).

Chapter three has used hypnosis to explore the mind-behaviour relationship: consciousness, free will, intention, and behavioural change. Much like the relationship in general, hypnosis seems to still be poorly understood. There is an ongoing debate about the effect of hypnosis on consciousness. There is also confusion about how to make sense of results that hypnosis can at times make people perform certain actions and behave in certain ways. What seems clear is that further research is required, and that new information might benefit from new designs that do not rely on

experimentally-driven intention. If new research could identify a way of testing an organic, non-experimental intention, this might more accurately represent truly free will. It might also help to make sense of hypnosis, and potentially the mind-behaviour relationship.

Chapter 4: Methods

Chapter 2 explored the triad of free will, consciousness, and behaviour. The reviewed literature demonstrated that there is doubt and confusion about the causal relationship between mind and behaviour. Evidence from Libet (Libet, 1985; Libet et al., 1983) indicated that free will over action might not exist, and Wegner (Wegner, 1989, 2002) argued that control over consciousness might not be feasible either. Pacherie and Haggard (2010) argued that intention is still free, and that as such, consciousness retains a role in behaviour. This logic suggests support for the theory of planned behaviour (Ajzen, 1991), but evidence from interventions derived from the theory do not support it. Even research examining self-initiated behavioural change (Di Clemente & Prochaska, 1982; Prochaska & Di Clemente, 1982) has resulted in unclear theory and practice (West, 2005). The chapter concluded that ultimately the triad of free will, consciousness, and behaviour, would benefit from further research.

Chapter 3 explored hypnosis; a unique phenomenon cutting across the free will, consciousness, and behaviour triad. The chapter introduced the role of consciousness in hypnosis before focusing on, and critically examining, the role of free will. Two experimental designs were presented which, apart from resulting in unconvincing and mixed results, involved several design inadequacies. Aversive designs were unethical, and counter-suggestion designs instructed behaviour, rather than allowing it to self-select.

In order to address the shortcomings of aversive designs, the present study needed hypnosis to induce or promote a behaviour that was ethical. In order to address the shortcomings of counter-suggestion designs, this study needed to examine a behaviour that participants were already choosing to engage in. For these reasons, the

present study examined cigarette smoking, since ceasing or reducing smoking is considered a positive outcome for participants, whether or not they intend it. Cigarette smoking is also a self-selecting behaviour, which is to say that it is not instructed.

The objective of this dissertation is to assess the role of intention (to smoke cigarettes) in hypnosis efficacy, in order to better understand the relationship between free will and hypnosis-induced alterations of consciousness. It is also designed to address the specific idea that hypnosis can be used to make behaviour happen against one's will.

Aims

The broad aim of the study was to explore the triad of free will, consciousness, and behaviour, since their relations remain unclear. Specifically, the aim of this study was to employ a new experimental design to assess the role of free will in hypnosis. From these aims, several research questions and hypotheses were derived.

Research Questions and Hypotheses

Hypothesis 1

Will smoking behaviour cease/reduce/alter with participants who do not intend to quit? It was hypothesised that smokers who do not intend to quit will quit/reduce/alter their smoking behaviour after a hypnotic intervention for smoking cessation.

Hypothesis 2

Does intention improve hypnotic efficacy? It was hypothesised that smokers who intend to quit /reduce/alter their smoking will do so at a greater rate than those who do not, following a hypnotic intervention for smoking cessation.

Hypothesis 3

Does degree of intention predict hypnosis efficacy? It was hypothesised that intention will predict changes in cigarette consumption or influence the efficacy of a hypnotic intervention for smoking cessation.

Hypothesis 4

Does hypnosis change intention? It was hypothesised that a hypnotic interventions for smoking cessation will not change the intention for smoking behaviour.

Hypothesis 5

Do beliefs about smoking predict change in behaviour? It was hypothesised that beliefs about smoking will not predict change in behaviour.

Several additional exploratory research questions were posed for qualitative analysis. These are provided below. There are no hypotheses for these questions, since they are considered exploratory.

Research Question 6

Do beliefs about hypnosis predict hypnosis efficacy? In other words, will reported beliefs about hypnosis correlate with changes in cigarette consumption after a hypnotic intervention for smoking cessation?

Research Question 7

Do beliefs about free will predict hypnosis efficacy? In other words, will reported beliefs about free will correlate with changes in cigarette consumption after a hypnotic intervention for smoking cessation?

Research Question 8

Do (retrospective) expectations about hypnosis relate to hypnosis efficacy? In other words, is there anything about retrospective expectations that is similar amongst participants who experience behavioural change after a hypnotic intervention for smoking cessation?

Research Question 9

How is change experienced (differently) following hypnosis? In other words, are there any common themes amongst participants who report changes in cigarette consumption after a hypnotic intervention for smoking cessation, whether they intended to change or not.

4.1 Present Research

This study measured and examined two factors believed to contribute to the efficacy of a hypnotic intervention. The two factors, intentions and beliefs, were each measured more than once with a diversity of techniques, resulting in both quantitative and qualitative data.

A repeated measures design was employed, to test the ongoing efficacy of a hypnotic intervention for smoking cessation with participants over a period of between two and six months. The study included three stages: stage 1 in which participants completed baseline measures of an assessment battery and two sessions of hypnotic intervention; stage 2 in which participants recompleted the assessment battery as well as a short, semi-structured interview; and stage 3 in which participants recompleted the assessment battery. Figure 4.1 (below) depicts the process of the present research program. The sections that follow address the participants, survey design, procedures, and data analyses.

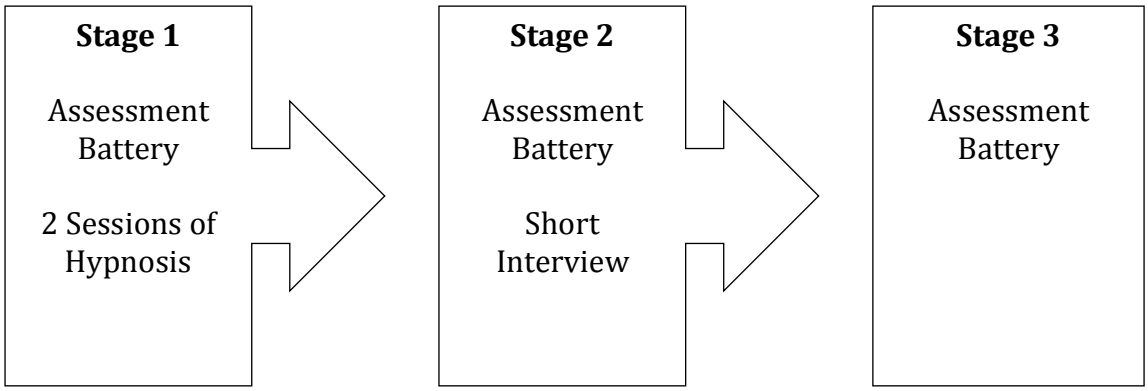

Figure 4.1. Study design.

4.2 Participants

This study used participants derived from a community sample. Participants were above the age of 18 for the purpose of legal consent, and spoke English as their first or preferred language, since there was no capacity to offer hypnosis in languages other than English. Participants reporting previous diagnoses of psychotic illnesses were declined, since the use of hypnosis in these cases is contentious (Pyun, 2013). Participants were advised of these requirements during the recruitment process (details provided on a digital poster), and signed consent forms upon presentation for the study. Copies of these can be found in Appendices 1 and 2. Ages were recorded in categories, as per Oakes, Chapman, Borland, Balmford, and Trotter (2004).

Stage 1 (Baseline)

Fifty-six (56) participants (male = 25, female = 31) were recruited to the study at baseline and underwent hypnosis. Most participants (53.6%) were between 18 and 29 years of age, the rest were between 30 and 49 (39.3%), or over 50 years of age (7.1%).

Stage 2 (2 months)

Thirty-seven (37) participants (male = 16, female = 21) completed Stage 2 of the study, between two and three months after the hypnotic intervention. Twenty-two (22) of these participants were aged 18-29, and 15 were aged 30-49. Nineteen (19) participants (male = 9, female = 10) did not complete Stage 2 of the study, including all of the participants aged 50 years or older. These participants voluntarily exited the study for several reasons including becoming emotional during hypnosis and electing to exit, becoming uncontactable, or simply declining to continue participating.

Stage 3 (6 months)

Twenty-two (22) participants (male = 13, female = 9) completed Stage 3 of the study, approximately six months after the original sessions of hypnosis. This includes four participants who did not complete stage 2, but re-joined the study for stage 3. Participants who participated in stage 3 were mostly aged between 18 and 29 (n = 14). Nineteen participants (male = 6, female = 13) who completed stage 2 of the study did not complete stage 3 of the study. Participants exiting the study at this point could not be contacted or reported being unavailable to complete surveys.

The changing number of participants limited the number of feasible statistical analyses. Many of the statistical analyses in chapter 5 will be derived from the 37 participants who participated in both stage 1 and stage 2 of the study. Table 4.1 (below) depicts the retention of participants throughout the study.

Table 4.1

Participant Retention

	Stage 1	Stage 2	Stage 3
No. of Participants	56	37	22[a]
Exited Participants	15	19	19

[a] Includes 18 participants from stages 1 and 2 and four who skipped stage 2.

4.3 Materials

As part of stage 1, participants completed an initial assessment battery consisting of three parts: a demographic survey, a psychological scale (Stages of Change Readiness and Treatment Eagerness Scale or SOCRATES), and a beliefs questionnaire (Self-Exempting Beliefs Questionnaire). These instruments can be found in Appendix 3.

Participants then underwent a hypnotic intervention following a prepared script, and completed a short, semi-structured interview regarding the experience during stage 2 (see Appendix 4). As discussed in chapter 1, hypnotizability was not measured in the present study. Hypnotisability was omitted for theoretical reasons, since it is considered that free will does not exist in degrees: individuals either have free will or they do not. If this is the case, it should not matter whether someone is more or less hypnotisable. Measuring hypnotisability, and potentially selecting participants by their scores, could result in measuring the wrong variable. In addition to this there is evidence that hypnotisability does not correlate with hypnosis efficacy (Green & Lynn, 2000) as well as evidence that hypnotisability can be experimentally altered (Cangas Diaz, Luciano, Perez Alvarez, Ruiz-Sanchez, & Eisenbeck, 2015). Such evidence suggests that not only is hypnotisability unnecessary for successful hypnotic interventions, but that it may potentially be an artefact of investigation techniques.

4.3.1 Demographic Questionnaire

The demographic questionnaire recorded gender, age, and cigarette consumption. Age was grouped in three (3) categories, as per Oakes et al. (2004).

Cigarette consumption was recorded with self-reported estimates per day (CCPD) and per week (CCPW). A ratio comparison of daily and weekly cigarette consumption provided an indication of whether the participant considered themselves a 'social smoker' or someone who smokes mostly in social environments on the weekend. This was achieved by multiplying CCPD by seven (days per week), and if the resulting number was less than the number recorded for CCPW, the participant was considered to be a social smoker. Participants were also asked to estimate longest previous quitting attempt (LQA).

4.3.2 Stages of Change Readiness and Treatment Eagerness Scale Version 8 (SOCRATES)

SOCRATES is a 19-item, Likert-scale response instrument designed to measure readiness for behavioural change. The scale ranges from 1 for 'No! Totally disagree', to 5 for 'Yes! Strongly agree'.

SOCRATES contains three factorially derived aspects of treatment readiness: Recognition, Ambivalence, and Taking Steps. Recognition items purport to measure whether participants considered smoking to be a problematic behaviour that required change, and consisted of seven items, resulting in a score out of 35. A sample item from the Recognition subscale is, "If I don't change my drug use soon, my problems are going to get worse".

Ambivalence items purport to measure how open participants are to reflecting on their behaviour, which is considered an important pre-cursor to change. It consisted of four items resulting in a score out of 20. A sample item from the ambivalence

subscale is “Sometimes I wonder if my drug use is hurting other people”. Taking Steps purports to measure the extent to which participants are already taking action to cease or reduce their smoking, and consisted of eight items resulting in a score out of 40. A sample item from the Taking Steps subscale is “I have already started making some changes in my drug use”

Table 4.2

Reliability Scores for the SOCRATES

	Cronbach’s Alpha	Test-Re Test Reliability	
		Intra-Class	Pearson
Ambivalence	.60 - .88	.82	.83
Recognition	.85 - .95	.88	.94
Taking Steps	.83 - .96	.91	.93

In the present study, the SOCRATES measured the degree of participants’ intention to cease or reduce smoking. This was derived from two different places. The first is from item 1 of the SOCRATES, which states “I really want to make changes in my smoking”. Participants’ 5-point Likert-scale responses were coded into one of three categories. Participants who responded (1) ‘Strongly Disagree’ or (2) ‘Disagree’ were deemed to have ‘No Intention to Quit’ smoking (NIQ). Participants who responded with (3) ‘Undecided or Unsure’ were categorised as ‘Ambivalent’ (AMB). These two categories, NIQ and AMB, were ultimately combined, since they both represent no active intention to change behaviour. Participants who responded (4) ‘Agree’ or (5) ‘Strongly Agree’ were considered to have an ‘Intention to Quit’ smoking (ITQ).

The second measure of intention was derived from the SOCRATES subscales. The calculated subscale scores for each participant provided an additional measure of intention.

4.3.3 Self-exempting Beliefs Questionnaire (SEB-Q)

Items used to assess smoking-related beliefs were derived from a prior study which examined the self-exempting beliefs typically demonstrated by smokers. Oakes et al. (2004) investigated the beliefs that perpetuate smoking behaviour and protect it from logical doubts about its harmfulness. Their factor analyses revealed a range of beliefs which individuals employ to 'exempt' their selves from the psychological dissonance of self-harming smoking. These beliefs clustered into four main scales: sceptical, bulletproof, 'worth it', and jungle beliefs. A sample item for each belief is provided below in table 4.3.

In the present study, participants responded to relevant items on a Likert-type scale for the extent to which they agreed or disagreed. As per the SOCRATES, the Likert-scale ranged from 1 for 'No! Totally disagree' to 5 for 'Yes! Strongly agree'.

Table 4.3

Self-Exempting Beliefs Questionnaire Sample Items

Belief	Sample Item
Skeptic	Lots of doctors and nurses smoke, so it cannot be all that harmful.
Bulletproof	Cancer mostly strikes people with negative attitudes.
Worth it	You have to die of something, why not enjoy yourself and smoke?
Jungle	It is dangerous to walk across the street.

4.3.4 Carbon Monoxide Measure (piCO+ Smokerlyzer)

People who smoke exhale more carbon monoxide than people who do not, typically up to four times as much. Deveci, Deveci, Açik, and Ozan (2004) found that people who smoke expire 17.13 parts per million (ppm) of carbon monoxide, on average, compared with 3.6 ppm for people who do not smoke.

A piCO+ Smokerlyzer, a portable carbon monoxide detector with an electro-chemical sensor, was used to calculate a 'parts-per-million' (PPM) measure of carbon monoxide in each participant's breath. Portable carbon monoxide detectors are proven to accurately measures of carbon monoxide concentrations in smokers (Lapostolle et al., 2005). An image of the Smokerlyzer used is shown below (Figure 4.2). Participants provided breath samples at each stage of the study.

Figure 4.2. piCO+ Smokerlyzer.

Although participants self-reported the number of cigarettes they consumed, self-reports tend to under-estimate cigarette consumption. When participants are aware that smoking status will be validated by physiological measures, the accuracy of self-reports increases (Prochaska & Di Clemente, 1983, p. 392). Physiological measures can provide another useful variable with which to compare participants (Patrick et al., 1994; Ramo, Hall, & Prochaska, 2011).

4.3.5 Post-Intervention follow-up interview and voice recording

Previous researchers have emphasised the importance of qualitative follow up data to support future research in the field (Lynn et al., 1984, p. 302). To address this, participants were administered a semi-structured, recorded interview during stage 2 of the study, between two and three months after the hypnotic intervention. The interview included five open-ended questions designed to facilitate a conversation about smoking and hypnosis. These questions addressed smoking behaviour, experience of hypnosis, beliefs about hypnosis, beliefs about free will, and any additional feedback. Interviews were recorded with the aid of a laptop computer, and later transcribed for analyses. The semi-structured interview form is in the Data Collection Documents, provided in Appendix 3.

4.4 Hypnosis Intervention

Two scripts were developed specifically for the hypnosis conducted in the present research, one for each session of hypnosis. Script 1 was designed with permissive themes and emphasised choice, minimizing the 'need' to cease smoking, since this can result in resistance. All participants, NIQ, AMB, and ITQ, received the same script, and therefore it needed to cater to the attitudes and intentions of participants who did not intend to quit. Script 2 focused on an identity theme and age progression,

expressing the psychological benefits of quitting smoking. A single practitioner administered all of the hypnosis in order to minimise variance attributable to the hypnotist. A copy of each hypnosis script is available in Appendix 4.

4.5 Procedures

After receiving ethical approval from the Monash University Standing Committee on Ethics in Human Research Committee (Appendix 5), participants were recruited via the web-based, social media service Facebook. An 'event' was generated, and approximately 1100 individuals were invited. A digital poster with instructions to contact the researcher for participation was uploaded to the event, as well as instructions to forward the invitation to other individuals who may be interested in the study (see Appendix 1). Interested parties then emailed the researcher and were sent an email requesting telephone contact details. The researcher contacted each person who provided telephone details individually in order to give information about participation requirements, and answer questions about participation. The researcher also agreed to contact each participant again to arrange a date and time for assessment and intervention.

During stage 1, participants were administered the assessment battery, instructed to provide a breath sample for the Smokerlyzer, and completed their first session of hypnosis. The sequence typically lasted 70 minutes, including a 60-minute session of hypnosis. Participants were then reminded of their second hypnosis appointment details and departed. Seven days or less later, participants returned for their second session of hypnosis, which lasted approximately 50 minutes.

During stage 2, the researcher contacted the participants and scheduled follow up appointments to recomplete the assessment battery and short interview. Participants completed the assessment battery first and short interview second, in a

sequence that typically lasted 30 minutes. During stage 3, the researcher contacted the participants and scheduled follow up appointments to recomplete the assessment battery.

4.6 Data Analyses

The present study comprised both quantitative and qualitative data analyses. Quantitative analyses are typically preferred in the scientific community, however, given the subjective nature of intention, and the experiential nature of hypnosis, qualitative analyses were considered to be an important component for analysis.

Quantitative data were analysed using IBM SPSS Statistics (Version 20). Given the longitudinal design of the study, repeated measures analysis of variance (ANOVA) was frequently used in addition to regression analysis. Missing data for all analyses were handled on a case-by-case basis, and most instances of missing data were replaced with the mean. Instances of abnormal distribution were transformed with square root or $\log^{10}$ functions. A cut-off of $p<.05$ is used to gauge statistical significance.

Qualitative data were analyzed using the nVivo™ for Mac software package. Each participant interview transcript was entered into Nvivo as a separate internal source. Nodes were created for each of the themes that emerged in response to the interview questions listed above. Nodes were also created for NIQ & AMB and ITQ participants, as well as 'Cease/Reduce' and 'No Change' participants. This enabled matrix comparisons of participants defined by both intention and result.

Several research questions and hypotheses have been proposed, the answers for which can help illuminate the relationship between the mind and behaviour. A design for answering these questions has also been proposed, involving participants who smoke and their intention to quit or not quit, a battery of surveys, and a simple, two-

session hypnosis intervention. The specific design can in be found in Appendices 1 through 4.

Chapter 5: Results

This thesis explores free will, consciousness, and behaviour. Chapter 1 briefly introduced literature covering these topics, and provided an overview of this entire thesis: research background, problem, contributions, justification, methodology, limitations, as well as outlining the research problem. Chapter 2 explored these themes in more detail, including the work of Libet (Libet, 1985; Libet et al., 1983), Wegner (Wegner, 1989, 2002), and Pacherie (Pacherie & Haggard, 2010). Chapter 3 used hypnosis as a unique lens through which to explore two of these three themes in greater detail: consciousness and free will. Research regarding the role of free will in hypnosis was examined in the greatest detail, and revealed two experimental designs which, apart from resulting in unconvincing and mixed results, involved several design inadequacies. Aversive designs were unethical, and counter-suggestion designs instructed behaviour, rather than allowing participants to self-select behavior. Chapter 4 outlined a new research design and procedure that could address these shortcomings, methods that were ultimately used in the present study.

This chapter details the results of the study, both quantitative and qualitative analyses. Quantitative analyses are provided first followed by the qualitative analyses. The quantitative analyses include the results of repeated measures ANOVAs, correlations, and multiple regression analyses. The qualitative analyses involve thematic analyses (Braun & Clarke, 2006).

5.1 Quantitative Analyses.

The quantitative analyses address the five hypotheses: It was hypothesised that:

1) Participants who did not intend to quit/reduce/alter their smoking behaviour would do so following a simple, two-session hypnosis intervention.
2) Participants who smoked and intended to quit/reduce/alter their smoking behaviour would do so at a greater rate than participants who did not, following a simple, two-session hypnosis intervention.
3) A continuous measure of intention would predict changes in cigarette consumption.
4) Measures of intention would change following a simple, two-session hypnosis intervention.
5) Measures of smoking-related beliefs would correlate with changes in smoking behaviour following a simple, two-session hypnosis intervention.

Each section addresses one of these questions, and includes descriptive data. Although data was collected on three occasions (baseline, 2/3 months, and six months), analyses typically only include the first two data-points in order to meet the requirements of Mauchly's Test for Sphericity, which can be compromised if the sample is too small.

Change in cigarette consumption needed to be established before NIQ and ITQ participants could be compared. The best statistical analyses for this was a one-way, repeated measures ANOVA. Repeated measure analyses are amongst the most valid and robust since they control for individual differences. The level of complexity in this study did not require mixed-model statistical analyses, nor was multiple analysis of variance (MANOVA) suitable, since error relating to individual differences is assessed.

Regarding assumptions, the dependent variable (cigarette consumption) was continuous, and there were two groups: a group of participants with No Intention to Quit (NIQ) and a second group who Intended To Quit (ITQ). One significant outlier was

removed from the group, and the cigarette consumption and smokerlyzer data were not normally distributed, so they were transformed with square root calculations. Finally, as mentioned above, analysed data were limited to only those from the first two time-points, avoiding problems relating to sphericity (i.e., Mauchly's test).

Within factors analysis in a repeated measures ANOVA determined that overall there was a significant reduction in cigarette consumption after hypnosis (F (1,36)= 19.193, P<.001).

5.1.1 Cigarette consumption following hypnosis for NIQ and AMB participants.

The specific question was: can cigarette consumption after hypnosis change/reduce when participants do not intend to change their smoking? In the present study, intention was measured by item 1 of the Stages of Change Readiness And Treatment Eagerness Survey (SOCRATES), which divided participants into those who intended to cease/reduce smoking, and those who did not intend to. Change in smoking behaviour was measured in cigarette consumption per day (CCPD), cigarette consumption per week (CCPW), and Smokerlyzer reading (SMOK). None of these measures were normally distributed, and were transformed with log or square-root transformations accordingly, to meet the assumptions of the analyses chosen. Since data from only two time points were included in these analyses, Mauchly's Test for Sphericity cannot be violated.

Repeated-measures ANOVA was conducted on the data of NIQ and AMB participants to determine if there was a significant difference in cigarette consumption per day between stage 1 and 2. The results of the analysis demonstrated a small but significant change in the daily cigarette consumption of NIQ and AMB participants between stages 1 and 2 (F (1,11) = 5.22, p = .043).

A second repeated-measures ANOVA was conducted with NIQ and AMB data to determine if there was significant change in cigarette consumption per week between stages 1 and 2, using reported cigarettes consumed per week (CCPW) as the dependent variable. CCPW was recorded to identify asymmetric smoking behaviour or 'social smokers' who smoke more on some days (weekends) than others. As per cigarettes consumed per day (CCPD), the results of the analysis demonstrated a significant change in the CCPW of NIQ and AMB participants between stages 1 and 2 of the study ($F(1, 11) = 79.08$, $p < .001$).

A third repeated-measures ANOVA was used to determine if there was a significant change in the Smokerlyzer readings of NIQ and AMB participants between stage 1 and stage 2. The results of the analysis did not demonstrate a significant change in smokerlyzer readings ($F(1,10) = 1.51$, $p = .247$).

These analyses indicated that the self-reported number of cigarettes consumed by NIQ and AMB participants per day and per week significantly changed (reduced) following the administration of hypnosis. The same cannot be said for the objective Smokerlyzer scores, which did not change.

These analyses are based on the results of a group of participants considered to have no intention of ceasing or reducing smoking (n = 14); nine (9) of whom recorded ambivalence towards smoking cessation or reduction, and five (5) of whom explicitly indicated no desire to cease/reduce smoking. These participants (6 = male, 8 = female) were mostly aged between 18 and 29 (n=10). Provided below in Figures 5.1, 5.2 and 5.3 are the mean CCPD, CCPW, and SMOK results for NIQ and AMB separately and combined, across all three stages of the experiment.

NIQ participants reported that they consumed 9.6 (SD = 3.2) cigarettes per day at stage 1, which reduced to 8 cigarettes per day (SD = 2.8) at stage 2, and 11 per day (SD =

1.4) amongst participants who reached stage 3 of the study. This sequence (*baseline – reduction - return to baseline)* was also evident in cigarettes consumed per week: NIQ participants averaged 73 cigarettes consumed per week (*SD* = 25.88) at stage 1, 55.25 cigarettes per week (*SD* = 17.8) at stage 2, and 73.75 cigarette per week (*SD* = 4.7) at stage 3. The sequence is also observed in the maximum number of cigarettes consumed per week, at each stage. At stage 1, the maximum number of cigarettes consumed by an NIQ participant is 95 per week, 70 per week at stage 2, and 80 per week at stage 3. The change sequence of CCPD and CCPW amongst NIQ participants was also evident in their smokerlyzer scores. At stage 1, NIQ participants averaged 15.64 ppm (*SD* = 12.89) of carbon monoxide in an exhaled breath, 13 ppm (*SD* = 12.83) at stage 2, and 19.75 ppm (*SD* = 24.95) at stage 3.

AMB participants reported that they averaged 8.44 cigarettes per day at stage 1, 4.37 per day at stage 2, and 6.2 per day at stage 3. They consumed 65.22 cigarettes per week at stage 1, 38.71 cigarettes per week at stage 2, and 43.6 cigarettes consumed per week at stage 3. Regarding Smokerlyzer readings, ambivalent participants recorded 10.44 ppm carbon monoxide at stage 1, 7.43 ppm at stage 2, and 4.67 ppm at stage 3.

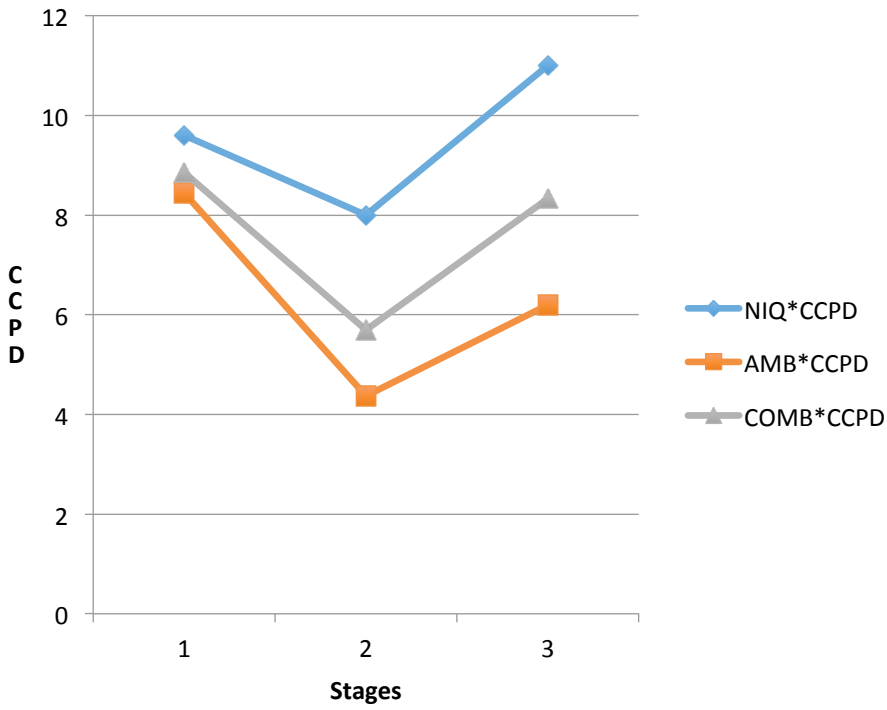

Figure 5.1. Cigarettes consumed per day by NIQ and AMB participants.

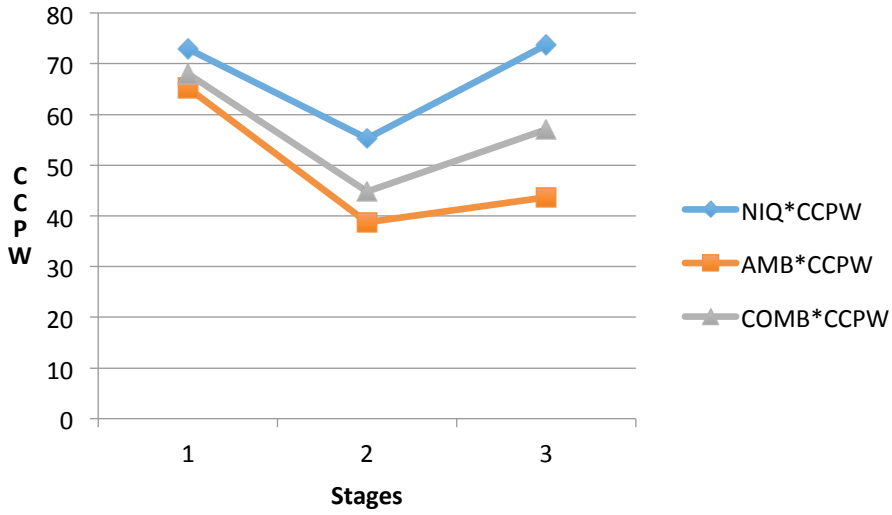

Figure 5.2. Cigarettes consumed per week by NIQ and AMB participants.

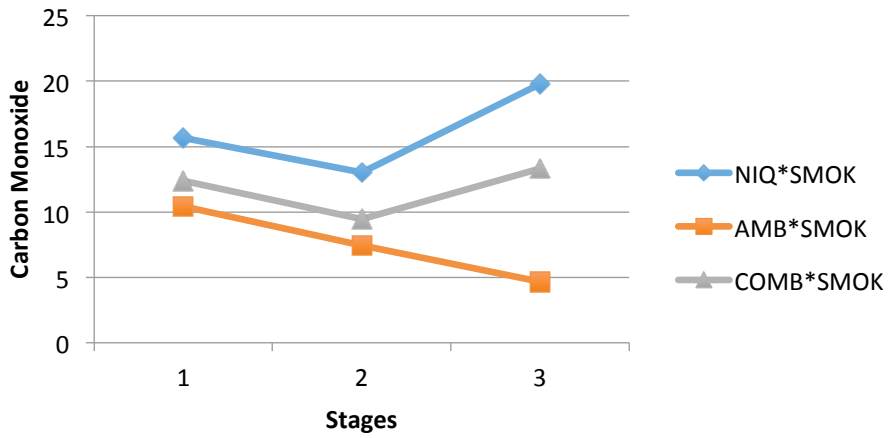

Figure 5.3. Smokerlyzer scores by NIQ and AMB participants.

5.1.2 NIQ and AMB participants compared with ITQ participants.

This section compares the data of ITQ and NIQ/AMB participants to determine if there are significant differences in their rate of quitting and rate of reduction in cigarette consumption. Due to a small sample size, participants with no intention to quit smoking (NIQ) were combined with participants with ambivalence towards quitting (AMB). The resulting group of participants are still referred to as NIQ participants, since AMB participants are not actively attempting to cease or reduce their smoking.

Intention, assessed by item 1 of the SOCRATES, distinguished those who intended to cease/reduce smoking from those who did not. The dependent variables were self-reported cigarette consumption per day (CCPD), cigarette consumption per week (CCPW), and Smokerlyzer reading (SMOK). None of these measures were normally distributed, and were transformed with log or square-root transformations accordingly. Since data from only two (2) time points were included in these analyses, Mauchly's Test for Sphericity cannot be violated.

Within-subjects Repeated-measure ANOVA revealed a significant change in overall DVs between stage 1 and stage 2 of the study. Between-subjects Repeated-

measures ANOVA was used to test for significant differences between participants who did not intend to change (NIQ) and those who did (ITQ). Three separate analyses were conducted to assess each of the DVs: Cigarettes Consumed Per Day (CCPD), Cigarettes Consumed Per Week (CCPW), and Smokerlyzer scores (SMOK).

In regards to CCPD, the results of the between-subjects, repeated-measures ANOVA indicated no significant differences between the NIQ and ITQ participants (F (1,35) = .310, p = .581).

In regards to CCPW, the results of the between-subjects, repeated-measures ANOVA indicated no significant differences between NIQ and ITQ participants (F (1,33) = .976, p = .330).

In regards to Smokerlyzer readings (SMOK), the results of a between-subjects, repeated-measures ANOVA indicated no significant difference between NIQ and ITQ participants (F (1,35) = .018, p = .89). These analyses indicate that NIQ/AMB and ITQ participants self-reported cigarettes consumed per week and per month did not change significantly, nor did they record significantly different smokerlyzer readings.

Figures 5.4, 5.5, and 5.6 (below) provide the untransformed NIQ/AMB and ITQ CCPD, CCPW, and SMOK data, including data from stage 3. These results demonstrate the nature of the changes in cigarette consumption between the two groups.

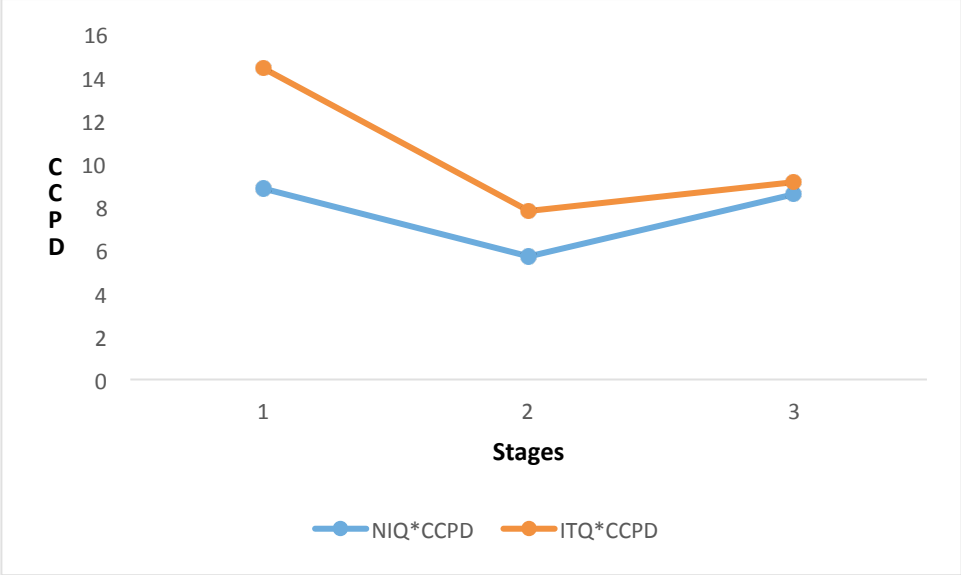

Figure 5.4. Comparison of NIQ and ITQ participant changes in CCPD.

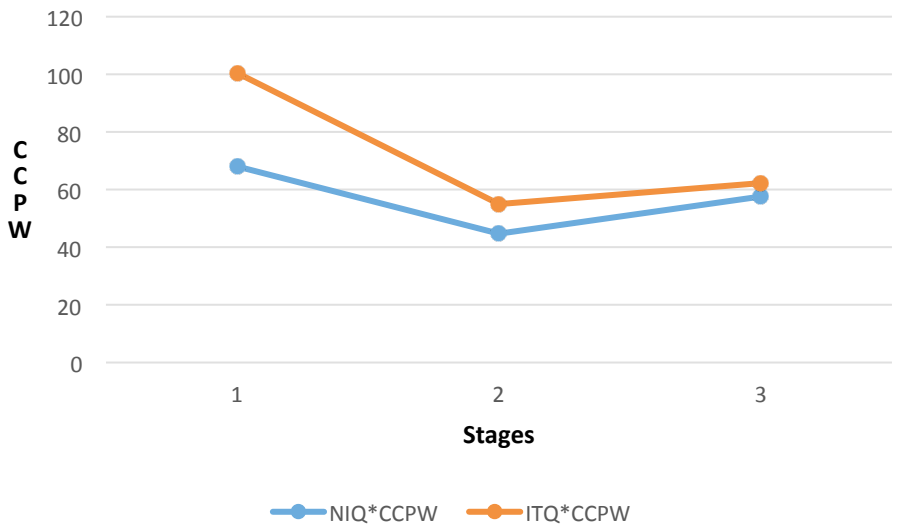

Figure 5.5. Comparison of NIQ and ITQ participant changes in CCPW.

At stage 1, NIQ and AMB participants (n = 14) consumed 8.85 cigarettes per day on average, which reduced to 5.69 cigarettes per day at stage 2, and increased to 8.57 cigarettes at stage 3. At stage 1, ITQ participants (n=27) consumed 14.4 cigarettes per day on average, which reduced to 7.79 cigarettes per day at stage 2 (n = 26), and increased to 9.12 cigarettes per day at stage 3 (n = 13).

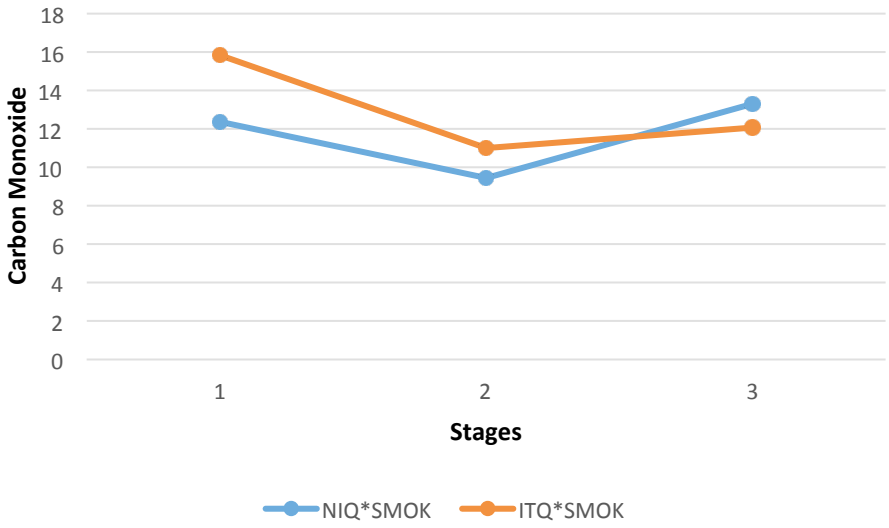

Figure 5.6. Comparison of NIQ and ITQ participant changes in Smokerlyzer readings.

At stage 1, NIQ/AMB participants consumed 68 cigarettes per week on average, which reduced to 44.73 cigarettes at stage 2, and increased to 57.71 cigarettes per week at stage 3. At stage 1, ITQ participants consumed 100.51 cigarettes per week on average, which reduced to 55 cigarettes per week at stage 2, and increased to 62.35 cigarettes per week at stage 3.

At stage 1, NIQ/AMB participants recorded Smokerlyzer readings of 12.36 carbon monoxide part per million (ppm) on average, which reduced to 9.45 ppm at stage 2, and increased to 13.29 ppm at stage 3. At stage 1, ITQ participants recorded Smokerlyzer readings of 15.85 carbon monoxide part per million (ppm) on average, which reduced to 11 ppm at stage 2, and increased to 12.08 ppm at stage 3. This data is provided in greater detail below, in Table 5.1.

Table 5.1

ITQ and NIQ Participant Result Comparison

Characteristics		ITQ	NIQ
Stage 1		n = 27	n = 14
	Gender	13 male 14 female	6 male 8 female
	CCPD	14.411	8.857
	CCPW	100.51	68
	SMOK	15.85 ppm	12.36 ppm
Stage 2		n = 26	n = 11
Gender		12 male 14 female	4 male 7 female
CCPD		7.79	5.69
Change from Stage 1		-6.621	-3.167
Maximum Individual Change		- 40.00	- 10.00
CCPW		55.40	44.73
SMOK		11.00	9.45
Stage 3		n = 13	n = 7
Gender		8 male 4 female	5 male (ppt returned) 4 female
CCPD		9.12	8.57
Change from Stage 2		+1.33	+2.88
Maximum Improvement		- 1.00	-0.50
CCPW		62.35	57.71
SMOK		12.08	13.29

The results for NIQ/AMB and ITQ participants can also be categorised dichotomously by separating those who did or did not reduce cigarette consumption. Participants who reduced their cigarette consumption by one cigarette or more per day, were deemed to have reduced. By defining change this way, it is observed that 50% of

NIQ/AMB participants achieved a reduction, while 80% of ITQ participants achieved a reduction. These figures are provided in Table 5.2 (below).

Table 5.2

Improvement versus No Improvement by Intention

Behavior	ITQ (n = 27)	NIQ + AMB (n = 14)
Reduction in cigarette consumption per day	22	7
No change in cigarette consumption per day	5	7

5.1.3 The predictive value of intention.

Section 3 addresses hypothesis 3 regarding intention and cigarette consumption. Four (4) separate measures of intention were analysed for their predictive ability: Item 1 of the SOCRATES, the Recognition subscale of the SOCRATES, the Ambivalence subscale of the SOCRATES, and the Taking Steps subscale of the SOCRATES. The outcome/goal was measured by calculating changes in cigarette consumption per day (CCPD), cigarette consumption per week (CCPW), and Smokerlyzer readings (SMOK). Measures for CCPD, CCPW, and SMOK were all found to be abnormally distributed, and were transformed with log or square-root transformations accordingly. Correlation and multiple regression analyses were used to determine if any of these intention factors predicted a significant amount of the variance in the cigarette consumption or smokerlyzer data.

Correlation analysis revealed significant, positive relationships between measures for change in some cigarette consumption (CCPD, CCPW) and both Item 1 of the SOCRATES, as well as the SOCRATES subscale Recognition. This result indicated that higher measures of intention were associated with greater reduction in cigarette

consumption. Neither baseline nor changes in Ambivalence and Taking Steps subscale scores correlated significantly with measures of cigarette consumption.

Responses to Item 1 of the SOCRATES correlated significantly with the calculated measure of change in cigarette consumption per day, explaining 19.2% of the variance between the factors (r_S = .438, p = .007). Item 1 of the SOCRATES also correlated significantly with change in cigarettes consumed per week (r_S = .406, p = .013), but did not correlate significantly with smokerlyzer scores (r_S = -.088, p = .606).

Responses to items for the Recognition subscale also correlated significantly with measures for change in cigarette consumption (CCPD, CCPW). Recognition subscale scores correlated significantly with cigarette consumption per day (r_S = .468, p = .004) and per week (r_S = .429, p = .008). As with item 1 of the SOCRATES, the correlation between the Recognition subscale and smokerlyzer readings was not significant (r_S = .300, p = .072).

These results were used to determine appropriate multiple-regression analyses. Using Item 1 of the SOCRATES response as the independent variable, a multiple regression analysis was able to predict significantly more variance than by chance alone (F (1, 35) = 8.73, p = .006, R^2 = .20). This result demonstrated that a measurement of intention predicted significant variance in self-reported cigarette consumption. It did not however, predict significant variance in smokerlyzer results.

5.1.4 The stability of intention after hypnosis.

As above, four separate measures of intention were analysed for their stability over time: Item 1 of the SOCRATES, the Recognition subscale of the SOCRATES, Ambivalence subscale of the SOCRATES, and the Taking Steps subscale of the SOCRATES. Repeated-measures ANOVA was used to determine if there was significant variance in scores for each measure of intention over time. Between-factors analyses

were used to compare NIQ/AMB participants with ITQ participants. Mauchly's Test for Sphericity was not violated unless otherwise indicated.

Repeated-measures ANOVA indicated that responses to Item 1 of the SOCRATES did not vary significantly between stage 1 and stage 2 of the study (F (1,35) = .005, p = .943). A significant difference was recorded between NIQ/AMB and ITQ participants at stage one of the study *(*F (1,35) = 44.91, p = .001).

Repeated-measures ANOVA indicated that scores for the SOCRATES Recognition subscale did not vary significantly between stage 1 and stage 2 of the study (F (1,35) = 3.63, p = .065), however, there was again a significant difference between NIQ/AMB and ITQ participants (F (1,35) = 7.69, p = .009).

The result was similar for the SOCRATES Ambivalence subscale scores. Repeated-measures ANOVA indicated that there was no significant variance between Ambivalence scores in stage 1 and stage 2 (F (1,35) = 1.022, p = .319), but a significant difference between NIQ/AMB and ITQ participants was evident (F (1,35) = 13.73, p = .001).

This pattern was not replicated for the SOCRATES subscale Taking Steps. Instead, a between-subjects, repeated-measures ANOVA indicated significant variance between stage 1 and stage 2 Taking Steps scores (F (1,35) = 22.16, p < .001), which included a significant difference between NIQ/AMB and ITQ participants.

The above repeated-measures analyses demonstrate that there was typically an insignificant change in measures of intention between stage 1 and stage 2. This was true for item 1 of the SOCRATES, the Recognition subscale, and the Ambivalence subscale. There was, however, a significant difference between the Taking steps subscale scores at stages 1 and 2.

5.1.5 The predictive value of smoking-related beliefs.

Four (4) types of smoking-related beliefs were analysed for their relationship to smoking reduction/cessation: Skeptical, Bulletproof, Worth it, and Jungle-type beliefs (Oakes et al., 2004). The outcome/goal was measured by changes in cigarette consumption per day (CCPD), cigarette consumption per week (CCPW), and Smokerlyzer reading (SMOK). Measures for CCPD, CCPW, and SMOK were all found to be abnormally distributed, and were transformed with log or square-root transformations accordingly. Correlation and multiple regression analysis were used to determine if any of these intention factors predicted a significant amount of the variance in the cigarette consumption or smokerlyzer data.

Significant correlations emerged in relationships between daily and weekly cigarette consumption, and changes in Jungle-type beliefs. Jungle-type beliefs pertained to beliefs indicating that 'life is dangerous, with or without smoking' (e.g. It is dangerous to walk across the street). Changes in Jungle-type response correlated significantly with both CCPD (r = -.390, p = .017), and CCPW (r = -.362. p = .028), but not smokerlyzer scores (r = -.180, p = .287). The significant correlations are negatively oriented, meaning that as jungle-type beliefs increase, cigarette consumption reduces. No other significant correlations were identified.

These results were used to determine appropriate multiple-regression analyses. Using the Jungle-type belief scale as the independent variable, a multiple regression analysis was able to predict significantly more variance than by chance alone (F (1, 35) = 6.26, p = .017, R^2 = .152). This result demonstrated that a change in jungle-type beliefs was negatively associated with change in reported cigarette consumption following hypnosis. In other words, when participants begin describing stronger jungle-type beliefs, their reported cigarette consumption decreased.

5.2 Qualitative Analyses

> Qualitative analysis transforms data into findings. No formula exists for that transformation. Guidance - yes, but no recipe. Direction can and will be offered, but the final destination remains unique for each inquirer known only when and if arrived at. (Patton, 2002)

The qualitative analyses are provided in this section. The procedure for thematic analysis used in this research is according to that outlined by Braun and Clarke (2006):

> 1) Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
> 2) Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
> 3) Collating codes into potential themes, gathering all data relevant to each potential theme.
> 4) Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
> 5) Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
> 6) The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.
>
> (2006, p. 87)

There are qualitative data to address each of the research questions in Section 5.2, as well as qualitative research questions only present in Section 5.3. In five of these subsections, the interview data of participants who achieved quitting or reduction (QR) are compared with the interview data for participants who did not achieve quitting or reduction (NQR), for differences in themes. These are in subsections 3, 6, 7, and 9. This section (5.3) also includes brief case analyses of participants who represent each of the four combinations of intention and result: intention/no intention to cease or reduce, and evidence/no evidence of reduced cigarette consumption.

5.2.1 The efficacy of hypnosis with NIQ and AMB participants.

This section provides qualitative data pertaining to Research Question 1: Can hypnosis be successful without the appropriate intention? Or in other words, can hypnosis work with participants who do not intend for it to succeed? Provided below are references to smoking behaviour outcomes for NIQ and AMB participants.

Quantitative analyses indicated a significant change in the reported number of cigarettes consumed per day and per week by NIQ and AMB participants between stages 1 and 2. Qualitative analyses supported this finding. NIQ and AMB participants described a mixture of changes to their smoking behaviour following the hypnotic intervention. More than one participant referred to a reduction in their cigarette consumption during the interview. For example:

Researcher: Where are you at with your smoking? …

Participant 46030: It just doesn't enter my brain … anymore, at all. Just the whole … thought process is gone … it is strange.

Another stated: "I am not smoking as much. I feel like I am not smoking as much." (Participant 46048).

Several participants reported nil or insignificant changes to their smoking behaviour, including the following statements: "My habits are exactly the same as they were initially when I first saw you. I am not a heavy smoker, but I smoke on a regular basis" (Participant 46015); "Still smoking. Don't think much has changed" (Participant 46006); "Unfortunately not [any change] (Participant 46034); and

> Researcher: How has it been? Has your smoking changed at all?
>
> Participant 46033: No.
>
> Researcher: No?
>
> Participant 46033: Not at all. I told people that it was rubbish – that it hasn't done anything.

Thematic analysis of the interview data revealed patterns in the responses. For example, one theme supported by the quantitative data was that of initial change/reduction in cigarette consumption, followed by gradual regression to the baseline rate of consumption. One participant stated

> I did actually smoke a bit less … between the two sessions, and also just after the second one … I just smoked a little bit less like, I guess I just didn't really enjoy the taste of it as much and I was just like smoking a bit less … and then it kind of just went back to normal (Participant 46055).

Another participant stated: "I am still smoking. I did stop for two, two and a half, weeks and I thought I was a champion. I was like 'I've done it! I've really gone and done it!' " (Participant 46056).

At times the smoking behaviour was changing by degrees not measurable by the cigarette consumption survey, for example:

> …every now and again, I will get half way through a cigarette and I will say 'Nah' … Like the first session I did walk out and started to roll my cigarette and went,

> ‘Nah, I don’t feel like one’ - put it back in my pocket … It is not usual for me to get half way through a cigarette and put it out. I get right down to the bottom” (Participant 46044).

Several participants also described experiences and cognitions that could be considered precursors for smoking behaviour change. For example, one NIQ/AMB participant stated

> … one of the big differences I noticed was I started to think about whether I was responding to a social cue for a cigarette or whether I actually wanted one – and that probably dropped my smoking a bit (Participant 46024),

Supporting this theme, another participant stated:

> I don’t really feel like very much has changed. I think there is maybe slightly more of a desire to give up than there was last time I came in, but as far as the actual smoking – it is more or less the same as it was then … I didn’t really want a cigarette that whole day, but I do remember after the second session not really feeling any different, and then wanting a cigarette a couple of hours later – as I normally would” (Participant 46075).

Regarding the research question, NIQ and AMB participants provided a spectrum of responses describing their cigarette consumption, commensurate with the quantitative data. Some participants described significant changes, others no change, and others still partial or short-term changes unrepresented in the quantitative data. Several NIQ and AMB participants also described changes in their cognition regarding smoking following the hypnosis, although no clear themes emerged from these references.

5.2.2 NIQ and AMB participants compared with ITQ participants.

Section 2 addresses hypothesis 2: Do participants who intend to quit (ITQ) achieve better results than participants who do not intend to quit (NIQ/AMB)?

This section provides qualitative data pertaining to the second research question. Provided below are references to smoking behaviour outcomes made by ITQ participants, for comparison with references made by NIQ/AMB participants (provided above).

Quantitative analyses indicated no significant variance in the rate of change in cigarette consumption between NIQ/AMB and ITQ participants from stage 1 to stage 2. Qualitative analysis supported this finding. ITQ participants also described a mixture of changes to their smoking behaviour following the hypnotic intervention.

Several ITQ participants described significant change in their smoking, for example: [I am smoking] “way less and I’m not buying packets of cigarettes” (Participant 46016); “ Smoking very, very little” (46018); “I smoke a quarter of what I was” (Participant 46037); “I feel like it has decreased a lot from what I used to” (Participant 46062); “Just completely like stopped [smoking]” (Participant 46072); and “I don’t smoke anymore. It hasn’t been a struggle to quit smoking. It is not something I think about. I just go about my day, now, smoke free” (Participant 46005). There were more instances of these statements amongst ITQ participants than NIQ/AMB participants, and their descriptions typically included more emphatic language such as ‘way less’, ‘a lot’, and ‘completely’.

There were also instances of ITQ participants describing their results less emphatically. For example: “I cut down a bit” (Participant 46022); and “I am still smoking on the weekends, consciously trying to have less … A little bit less but no real change to the behaviour (Participant 46017).

Several participants described nil or limited change in their smoking behaviour, including the following statements: "[my smoking is] still the same …" (Participant 46073); "I didn't feel any noticeable change after the hypnotism and I kept smoking" (Participant 46076); "Still smoking. Don't think much has changed" (Participant 46006); and "It is probably the same as it was before the hypnotherapy" (Participant 46052). Amongst ITQ participants, there was also evidence of a theme that had emerged amongst NIQ/AMB participants, namely initial improvement followed by gradual regress to the baseline rate of consumption. One ITQ participant stated, "It hasn't gone good (sic) for me. I have probably cut down a bit … At first there was [change] … But probably for the last three or four weeks it is just pretty much normal" (Participant 46008). Added another: "I did actually smoke a bit less … a little bit less … and then it kind of just went back to normal" (Participant 46055).

For one participant this change lasted for an even shorter period, stating: "There was a realisation in my head that maybe it is working, but within a day the cravings were back" (Participant 46020).

Regarding the research question, ITQ participants described the experience of smoking behaviour change more profoundly than their NIQ/AMB counterparts. While no NIQ/AMB participants, and only one ITQ participant recorded complete cessation in their cigarette consumption, several ITQ participants described complete cessation. For example, one participant who did not completely cease smoking, recorded a reduction of 20 cigarettes per week to 5 cigarettes per week, and during the interview stated "It is completely different like, it is 100% different" (Participant 46019).

5.2.3 The predictive value of intention.

Section 3 provides qualitative data pertaining to Research Question 3: Does a measure of intention predict changes cigarette consumption after hypnosis?

Quantitative analysis indicated that two, interrelated measures of intention were each able to predict a significant amount of variance in cigarette consumption data. Provided below is a comparison of references to intention made by participants who achieved cessation or a reduction in their smoking, with references to intention made by participants who did not achieve cessation or reduction.

Several participants who successfully ceased or reduced smoking referred to their intention to quit, for example: "I want to quit and I think it is quite disgusting and there are times when I do have a cigarette and I am just 'Ugh! Why did I have that cigarette?' " (Participant 46062); and

> I was hoping desperately that I would stop smoking – that was my main interest. I was intrigued at being hypnotised because I have never had it done before. And so my – I really wanted to stop smoking – so that was my ultimate goal. (Participant 46037)

One participant reported that their intention may be responsible for the success of the hypnosis, stating

> I really wanted to quit, so just having that sort of a crutch of hypnosis like really helped … [hypnosis] just completely worked. I don't know if that was just because of my mental state: I really wanted to quit. I was almost getting desperate. (Participant 46009)

Some participants who achieved cessation or reduction made less significant references to intention, as in, "I think, because my resolution before I walked in here was not 100% to say this will be my last cigarette forever. It was more: 'I hope that this can just [work]' " (Participant 46017); "I kind of never *really* wanted to be a smoker in the first place" (Participant 46076); and "I have always wanted to quit, but there was no real urge or there is no urgency to do it right now" (Participant 46019). Others referred

to conflicting intentions, reporting that they both detest and enjoy smoking. For example:

> It is gross and I don't want to do it … I still feel exactly the same way about it. But the other thing is I just really enjoy doing it, but I know it is so bad for me. I hate it because I know it is disgusting and it is - you shouldn't do – but I enjoy it. (Participant 46021)

Finally, at least one participant who ceased or reduced smoking described no intention to cease, stating:

> Interviewer: … do you think you wanted to quit or…?
>
> Participant 46031: No.
>
> Interviewer: You didn't want to quit?
>
> Participant 46031: No. I had no intentions of quitting and I told [HYPNOTHERAPIST] not to make me cluck like a chicken.

These responses were heterogeneous and no obvious pattern in references to intention made by participants who achieved cessation or reduction emerged.

Participants who did not achieve cessation or reduction in their smoking behaviour also made references to intention during their stage 2 interviews. Some participants who did not achieve cessation or reduction, referred to their intention not to quit, for example: "I smoke because I choose to smoke and I smoke because I don't really like the idea of giving up and I smoke because I enjoy it" (Participant 46075); or "I don't think so. I don't know. I don't know whether I wanted to stop just to see if I could do it. But I just didn't really want to, I don't think" (Participant 46010); and "I don't want to quit smoking" (Participant 46023).

As with QR participants, many NQR participants referred to mixed intentions, for example "Look, I suppose there was a part of me that wanted to, but there was still a part of me that said I am not ready" (Participant 46020), and

> …the goal of quitting smoking, as you knew going into it, was never really a 'yes, I do want to quit smoking at some point' but I hadn't identified [the study] as the moment I would quit smoking. And I guess that was the thing, like there was no, going into it there was no desperation or desire to quit smoking (Participant 46034).

In the same vein, one participant stated

> You know like when I agreed or showed interest in doing the hypnosis with you guys, I came on the basis that I didn't want to quit smoking. Which I didn't at the time but always – forever -for at least the last couple of years – I have known [that] I have got to give up at some point. But I am just smoking. I am just going for it … I don't want to smoke and I don't have control over it … I want to quit but it is like – I don't know whether I am just being a – I want to quit but it is easier to keep smoking … I think what it is, is that I really - I want to give up smoking but I have put it in the Too Hard Basket and it is easier to keep smoking. (Participant 46050)

This theme of mixed intentions was perhaps the most prevalent amongst descriptions of intention provided by participants who had not ceased or reduced their smoking.

There were also participants who expressed the intention to quit smoking amongst those who did not succeed in doing so. For example, "I enjoy [smoking] but I don't want to smoke. I need to give it up … I know I have to give it up. I actually thought that this would have changed all that, but unfortunately it didn't" (Participant 46066).

When the intentions of participants who achieved smoking cessation and reduction are compared with the results of participants who did not, no obvious conclusions can be drawn. No obvious themes emerged, only trends, to respond to the question: does intention predict outcome? Both groups depicted the full spectrum of intentions, however there was a trend amongst participants who were unsuccessful to describe mixed and conflicting intentions. These participants frequently indicated that they 'should' cease or reduce their smoking. While the intention to quit did not obviously correlate with successful ceasing or reducing, there was evidence that mixed or conflicting intentions were more prevalent amongst participants who did not achieve reduction or cessation.

5.2.4 The stability of intention after hypnosis.

Section 4 provided qualitative data pertaining to Research Question 4: Can hypnosis change or influence intention?

Quantitative analyses indicated that measures of intention provided an inconsistent and unclear picture of its nature. Measurements of intention typically remained unchanged after hypnosis. Item 1 of the SOCRATES, as well as the Recognition and Ambivalence subscales, did not demonstrate significant variance between stages 1 and 2, for example. However, the Taking Steps subscale (a measure of ceasing/reducing smoking activities) did demonstrate significant variance between stages 1 and 2. Provided below are references to changes in intention during the study.

Qualitative analysis yielded useful information regarding how participants experienced intention, although an inconsistent and unclear understanding of intention was also reflected in some of their responses.

Several participants described experiencing a shift in their intentions during the course of the study, for example

> When I agreed or showed interest in doing the hypnosis … I came on the basis that I didn't want to quit smoking. Which I didn't at the time … But, I am just smoking. I am just going for it … I don't want to smoke and I don't have control over it … I want to quit but … I don't know whether I am just being a – I want to quit but it is easier to keep smoking. (Participant 46050)

Participants were also inclined to describe the nature of the shift in their reports. For example one participant described a delayed but sudden change, stating,

> When I went home and I had this overwhelming desire to have a cigarette and had one, or I had a couple on that day that I had the hypnosis, but then as soon as I woke up the next day, I didn't want a bar of them. (Participant 46016)

Instead of referring to a shift in the direction of their intention, some participants described a shift in the nature of their intention. Multiple participants described becoming more conscious of their intention, stating for example

> …it is more a chosen thing than a subconscious 'just go and reach for a cigarette'. And [now] I am actually very aware of when I am choosing to smoke and it is more like: I feel like a cigarette. I am going to have one. It is like a choice, whereas in the past it wasn't even thought of like that. It was: I am a smoker that is how I smoke and it is just something I will always do. Or did. And so now I am kind of where – when I am smoking – even if I have had quite a few drinks I could still go out and have a big night and I will come home with half a packet of cigarettes left – whereas, in the past, I could have easily had two decks in one night. So it is going from sort of 25 to 50 cigarettes in one night on the piss to about 10. So I think that is significantly different. (Participant 46072)

Another participant reported

> I [have] started to differentiate between social cues and actual cravings … my mind was preoccupied with the idea of smoking and constantly checking 'do I actually want one, or am I just responding to social cues? But am I overthinking it? Oh, now I am not sure. No, it's fine, I just won't have one.' [This led] to the point where I … really, really wanted one but my thoughts were completely preoccupied with [the question of whether I wanted one]. (Participant 46024)

Some participants demonstrated difficulty articulating the changes to their intention. For example,

> It is still probably a problem but I feel like I would never have given up cigarettes – I didn't have the right – I didn't have any mindset to give up cigarettes before – but now it seems like I just don't want them … It is just like - there is just no - I don't know – it is weird. I don't know why but it is just something that has changed" (46028). Another described the shift by stating "it is definitely more so at the forefront of something I really want to do. (Participant 46022)

Participants who referred to a shift in mindset typically achieved cessation or reduction in cigarette consumption following hypnosis. One participant, however, described a change in their intention to smoke without a change in behaviour, stating:

> Before I didn't hate it. Before, it didn't really worry me too much. Now, whenever I have a cigarette I hate it … but I still smoke. Even though now my head is going: I don't want to have them. I don't like having them. (Participant 46008)

5.2.5 The predictive value of smoking-related beliefs.

Section 5 addresses Research Question 5: Do beliefs relating to the target behaviour (smoking, smoking cessation), as opposed to beliefs about hypnosis, predict changes in cigarette consumption after hypnosis?

Quantitative analysis indicated that a measure of the change in jungle-related beliefs was correlated with a change in cigarette consumption after hypnosis data. Although participants were not asked about self-exempting beliefs explicitly, several made references to their beliefs and feelings about smoking and these are provided below.

No participant explicitly expressed a self-exempting belief per se or beliefs that 'exempted' their requirement to cease smoking, as per the SEB-Q. However, several participants did provide 'reasons' for the success or failure of the hypnotic intervention. Peer pressure is an example of this, as one participant stated,

> …we were all out and everyone was smoking and just the thought – I think the thing about smoking is that you go with everyone else. Maybe not so much a peer pressure thing but it is just because everyone else is doing it, you feel obliged to be doing the same thing. (Participant 46018)

Another participant stated "I am an idiot for [smoking] because I am not addicted and I just choose to do it socially when I am having a few drinks, and not even every time (Participant 46052); blaming their intellect/character. Another participant blamed the timing of the quit attempt – too close to a holiday:

> After the couple of sessions I pretty much stopped. I was only having the occasional one when I was drinking. And then something happened where I just started smoking again. I think it was probably something to do socially. And then I went away on a holiday for three and a half weeks – and that was it - I was smoking all the time then. And the reason I was smoking was because I would be bored; we would be waiting in a line to get in somewhere; just waiting around for the next plane or whatever, so I would have a cigarette. (Participant 46021)

Finally, one participant blamed it on stress, stating "I have just come out of exams so now is probably not a great time to be measuring my smoking" (Participant

46024). Each of these participants had demonstrated a reduction in their cigarette consumption but were explaining why their results had not been more significant.

Other participants who experienced a reduction in their cigarette consumption described new, negative affect for cigarettes. For example, when asked how he or she felt about smoking, one participant stated

> It is strange. I think I am just really turned off by it [now] ... I see people smoking … in the morning when I am walking to work and … I think it is gross. The smell, I find really hard to deal with. (Participant 46030)

Other participants also referred to the smell when describing new feelings about smoking, stating "Smelly. Disgusting. Unhealthy. A bad role model for my daughter" (Participant 46005), and "the smell of it, walking down the street, if people are smoking I have to cover my nose. It is disgusting. I hate it" (Participant 46027).

Another group of participants described new indifference towards smoking, as opposite to negativity. These participants stated "…in my mind - a bit cloudy, a bit foggy and stuff – the thought of cigarettes and then I just kind of stopped smoking them" (Participant 46028), another said,

> I don't have a problem with other people smoking around me. I have had people blow smoke into my face a couple of times but I have just no desire to smoke. Even when I am quite drunk, it doesn't even enter into my head anymore. It is not like I think smoking is disgusting - people shouldn't do it. I have no desire anymore. (Participant 46009)

Finally, one participant stated

> It is kind of like my attitude towards smoking has changed. Like I am not so negative towards it … maybe it is because I am not so thinking 'Don't smoke - don't smoke!' That probably makes me want to have a cigarette, makes me feel

> bad for smoking and then… maybe I am a bit more carefree about it so I am not tricking myself into smoking, maybe? … I don't feel so … upset that I am a smoker, probably because I haven't been smoking as much. (Participant 46048)

5.2.6 Understanding of hypnosis and response to hypnosis.

Section 6 provides qualitative data pertaining to an additional research question: How does our understanding of hypnosis shape or become shaped, by our experience/response to hypnosis? Provided below are themes emerging from participants' responses to the question "what do you think hypnosis is? and/or how do you understand hypnosis to work?" Themes and responses have been grouped by quit or reduce (QR) compared with neither quit nor reduce (NQR).

Quit/Reduce (QR) Participants

Participants who quit or reduced their cigarette consumption (n = 25) provided the most explanations for hypnosis, providing sixty-four references in total. The majority of participants referred to the 'subconscious' when providing an explanation or theory of hypnosis. According to many QR participants, hypnosis was successful by seeding the idea of quitting in the subconscious. Expressions of this idea included: "gets to your subconscious. You hear things and you dream things" (Participant 46016); or,

> I think that [you] get the mind to a state of relaxation where it is very susceptible to take information in maybe. And then you plant information in there somehow … I don't know what happened there, but I know that my behaviour has changed. (Participant 46048)

Similarly, "I don't know exactly how it works too much, but it is just sort of about trying to reset yourself subconsciously" (Participant 46028); "I think it is just kind of getting the conscious out of the way and tapping into the subconscious" (Participant 46022); or,

> It feels like my subconscious is thinking about things, but I am not thinking about it. And it comes into play with the smoking that I am not thinking about it, but I think my subconscious is always thinking about not smoking. (Participant 46019)

Continuing in that vein, "By talking to your subconscious (hypnosis) can change your habits, or change the way you think about things" (46021).

Only one (1) participant elaborated on this idea, stating:

> I think it just gets through to your – the part of you that, without all the ego and the 'buts' and the excuses part – just down to that self where there isn't really the yes or no … taps through to it more than just having a conversation on more of a conscious level or ego level. (Participant 46072)

Apart from this example, most participants were unable to elaborate on their understanding of hypnosis. As one participant pointed out "We are talking about the unconscious or the subconscious. We are not very in tune with them in the first place" (Participant 46076).

Inconsistent and unclear understanding was perhaps the most typical feature of QR participant theories. Participants frequently 'reached' for explanations, but could only manage vagaries: "something deep down there, inside of me, that's telling me that I don't smoke" (Participant 46002), and "I guess … that's what my mind absorbed (Participant 46005). Several participants addressed their difficulty directly, describing hypnosis as "hard to put into words" (Participant 46052). Others were unable to provide a complete and coherent idea: "It is really like it is not… I don't know" (Participant 46009). Despite this, participants were still inclined to attribute the change in their cigarette consumption to hypnosis, an idea most succinctly captured by a participant who stated "I guess it is just that you go into a relaxed state and your

subconscious… I don't know… no idea… I don't think I could have done it without it now (Participant 46027).

The second theme to emerge from QR respondents was that of wanting to quit and readiness to quit smoking. Several participants stated that desire or willingness (aka intention) to quit was the defining element of their success, and requisite for successful hypnosis. Some participants attributed their success to intention, while others attributed their failure to lack of intention. For example "I think with hypnosis … you need to want to do it. I don't think if you don't want to quit it will ultimately work so I don't think you can actually change something in the head like that" (Participant 46006). This idea was extended by other participants who suggested that degree of intention would determine degree of success, as in, "I believe in hypnotism I just think that you have to be willing to go with it or want it more than I did… I think it works if you want it to, if you believe it" (Participant 46024), and another participant who answered the question 'what sort of people do you think it works for?' with "Anyone who wants to let it work" (Participant 46058).

At least one participant directly contradicted this theme, however, by suggesting that 'wanting' a particular outcome could have prevented him/her from reaching his/her goal, stating,

> I really wanted it to happen after the second session. I felt like I had participated in something and therefore I needed to see a result. And the more pressure I put on myself to do that - it didn't feel right. When I relaxed and stopped worrying about it I just stopped smoking. I felt really good about it. (Participant 46037)

Participants who raised the theme of intention tended not to also refer to the role of the subconscious.

Apart from these two themes, the remaining explanations of hypnosis provided by QR participants tended to be heterogeneous. The only theme unifying the remaining responses was their heterogeneity. One participant described hypnosis in a manner akin to the placebo effect, stating

> I think I was just ready to quit and I think hypnosis probably … made me think that I had something, which was convincing me to do it … like 'oh, I can quit now because I have had hypnosis', rather than 'hypnosis made me quit'. (Participant 46009)

Another participant suggested that individual differences are what determine the success of hypnosis stating, "I believe it works. I am sure it probably works for some people more than others" (Participant 46062).

Several others could not provide an explanation for hypnosis, stating "no… no theories" (Participant 46031), or "I don't know really… I am not really sure what happened" (Participant 46056). One QR participant reported that it was a deliberate choice not to theorise hypnosis stating,

> I don't know … and I don't want to overthink it either… I think I am happier just to not know. It is working so I will just leave it at that. I am the kind of person (who) once I get onto that kind of train of thought I will … keep going into it and maybe that will just unravel it. (Participant 46030)

This response is unique, and harks to a 'magical' understanding of hypnosis.

There were also participants who misunderstood the question and did not provide a theory, instead describing literally what happened to them (e.g. 'hypnosis works when someone talks to you in a relaxing voice, and asks you to do things in your mind').

Nil Quit/Reduce (NQR) Participants

NQR participants provided fewer responses when asked about theories of hypnosis (39), commensurate with their smaller sample (n = 16). Despite being fewer in number, the theories of hypnosis provided by NQR participants reflected each of the themes provided by QR participants, namely subconscious seeding, wanting and intention, as well as ideas such as individual differences.

The subconscious, for example, and uncertainty regarding it, was again expressed,

> I don't know. Whether it is just to kind of give you internal power to be able to make the decision to stop doing it. I don't really understand it too much. Obviously it is going into your subconscious and kind of training that area, but other than that I don't know how it works. (Participant 46010)

and [hypnosis works by] "going into subconscious and trying to make you think differently and change your mind and aspect on things – kind of subconsciously" (Participant 46055).

Some NQR participants were, however, able to give these subconscious theories much greater detail and insight than their QR counterparts. For example,

> I make sense of hypnosis as being a way of bringing a whole bunch of unconscious patterns, not to your consciousness, but just to sit with them in a conscious place and to give the person undergoing hypnosis a sense of control with that particular idea, (Participant 46054)

and

> Going into a deeper level of subconscious… the same place where you daydream, where you don't actively have control of the thoughts that you are having. So at the point of that time where you don't actively have control of your thoughts,

> someone is talking to you, putting thoughts in there to guide your… stream of consciousness, but it is more stream of unconscious thoughts… below the conscious probably has more of a connection to your overall mood and state of being, and so if you can get in there and influence someone's mood… [you can] plant the seeds of positive thoughts. (Participant 46034)

Another participant captured one understanding of hypnosis clearly, stating,

> …being in a hypnotic state is somewhere where your conscious mind is … quiet… so it doesn't reason with what you are being told or being given. It just quietly sort of sits there in your unconscious without your conscious mind going 'oh that is a load of rubbish. That doesn't make sense'. (Participant 46075)

After the theme of subconscious, wanting and intention also became frequently cited ideas by NQR participants, although in the instance of these references, theories were less detailed than for their QR counterparts. When referring to wanting and intention, NQR participants provided vague and unclear explanations of hypnosis, in much the same way that QR participants had explained the subconscious in hypnosis. For example, "I think it is a thing of most people who want to quit smoking have already got that in their head that they want to [quit]… But with me I think it was just a thing of 'you can't tell me'" (Participant 46044), or,

> …with quitting smoking there has to be a certain level of want from the person as well. And because I am a believer in hypnosis, I think it would have worked if I was more committed from my end too, (46050)

and "It works if you have that desire to be doing something… it feels like you need to have this idea in your head to do this and then your belief in the placebo effect" (Participant 46065).

NQR participants also made references to individual differences, and how they accounted for the mixed efficacy and reputation of hypnosis. For example, "the blunt answer… I don't believe in it, but … obviously for some people it works… I think skepticism probably kills a lot of what happens" (Participant 46020); or "I think that it may work, I think that it will work differently for everyone – what sort of state they are in or what level of belief that they have" (Participant 46015), and "as far as I am concerned, I don't think it works. But then, I don't know. Other people have had it and been fine with it. So I don't know… I don't think it works" (Participant 46066).

One QR participant who did experience a reduction in their cigarette consumption described the idea of not wanting to overthink the process. An NQR participant described a parallel idea. When asked how hypnosis works, Participant 46008 began explaining why it didn't work, stating "maybe because I believe that it may work". When asked for clarification, Participant 46008 stated that hypnosis had worked for other people because they "didn't believe it was going to work, so they tried hard [to make it work]", whereas "it was in my head that it may actually work [so] I didn't try as hard". Apart from this example, effort was seldom discussed, by QR or NQR participants.

Summary

Themes emerging from answers to the questions "What do you think hypnosis is? and/or how do you understand hypnosis to work?" were mostly ubiquitous or equivocal. QR and NQR participants provided explanations covering the subconscious, willingness and intention, and individual differences, as well as some other less prevalent ideas. QR participants typically provided more detail for theories involving intention, while NQR participants were inclined to provide more detail for theories featuring subconscious processing. Despite evidence of trends, there is no clear or significant evidence that understanding of hypnosis shapes or is shaped by response to

a hypnotic intervention. Neither is there strong evidence to indicate that beliefs about hypnosis influence its effectiveness.

5.2.7 Understanding of Free Will and response to hypnosis.

Section 7 provides qualitative data pertaining to an additional research question: How does our understanding of Free will shape or become shaped by, the response/experience of hypnosis? Provided below are themes emerging from participants' responses to the question "Do you have Free Will and can you tell me what you think Free Will is?" and "Do you have 'will' or control over your smoking?" Responses have again been grouped according to outcomes quit or reduce (QR) compared with neither quit nor reduce (NQR).

Quit/Reduce (QR) Participants

Participants who quit or reduced their cigarette consumption (n = 25) provided the most explanations of free will, making 55 references in total. Several styles of responses emerged in response to questions about free will, with the two most prevalent amongst QR participants being 'simple' and 'hedged' responses. Simple responses included short responses, at times less than a full sentence, which simplified the idea of free will. These were typically yes or no answers to the existence of an idea that is complicated and abstract. Examples of simple answers included "100%" (Participant 46031), and "I believe we control everything we do and the choices that we make" (Participant 46005). Other simple responses included "I guess choosing and having control over your own life, and the patterns and choices that you make" (Participant 46072); and "obviously [everything] is a choice, apart from eating and drinking water, but everything else is kind of up to you" (Participant 46056).

A second and more prevalent style of response to questions about free will was the 'hedged' response, a response that both supported and denied the role of free will. For example:

> I think everyone has got free will and choice and all that kind of stuff [but] there are a lot of different factors depending on what you are talking about whether you actually have free will. Like, in theory you have a choice, but then there are other pressures and people or circumstances or whatever that kind of make that choice maybe more narrow than it could be ... I don't know if that is free will. (Participant 46022)

Unlike the topic of hypnosis, QR participants were more prolific in their explanations of free will. Many of the 'hedged' responses were evidence of this. For example:

> I guess I always have got the idea that we do have control over certain aspects of our existence. Certainly not everything, but as far as an addiction to smoking goes… I certainly think that that is something within our control… I think we have complete free will, but again it depends how deep you want to go. (Participant 46076)

Some of the hedged responses bordered on the philosophical, and referred to higher versions of power and control, for example:

> [Free will is] the ability to make your own decisions. Nothing, no higher power, is governing what happens to you: when it happens, how it happens, blah blah blah. And so it is kind of your ability to choose, to pick. Do I believe in it? I don't know. (Participant 46024)

and

> I believe that you have free will but it is probably polluted by a lot of different [factors]. But I think what people believe to be free will, is not as strong as they hold it so. There are a lot of outside forces polluting what your free will is. (Participant 46018)

Some QR participants referred to 'free will' in a political and legal sense, stating "I am free to make my own decisions and I have to bear the consequences of those" (Participant 46002); "Being allowed to do whatever you want" (Participant 46006); "Free will. I guess - respecting someone's decision in doing what they please without any interruptions or without judgement" (Participant 46061), and "Modern society doesn't really let (someone) have complete free will" (Participant 46052).

There were additionally participants whose responses repudiated free will or directly undermined the concept. These responses included both the rejection of free will, or the suggestion of an alternative to free will such as fate. These responses were often the lengthiest, and represented a sizeable portion of the total response set. Example responses in this style included "I guess it is because I am a person … and we all make our own decisions. But it's a choice that was made for me due to the hypnotherapy, I think" (Participant 46027); "No, especially over like cigarette addictions. I don't have the free will at all" (Participant 46028); and "I believe in fate and like a higher intervention and like there being something [greater]" (Participant 46048). Longer responses included:

> You are only going to make the decision based on knowledge you already know. So you are making decisions based on things that have influenced your entire life and it might be really positive or not … I guess it is kind of not free will, is it? Because you never have a clean slate, you have always got something that has happened to you a week before, a day before, a year before, happened to your

> Mum, your sister, your best friend – that is going to help influence your decision… You might not even realise that is where your thoughts are coming from … if I had all control I would be able to quit and I wouldn't smoke and I wouldn't need to think about smoking ... No I don't have total control. (Participant 46062)

Finally, a small group of participants described concepts more like self-control and 'will power' instead. For example, "I don't want to put too much pressure on myself, but I know having kids and things like that … I will not want to smoke for things like that" (Participant 46019); "I guess maybe I do have free will but I haven't done anything with it" (Participant 46017); and "I struggle to say no or to do a lot of things. Free will … it is there for me, but it is not as strong as it should be I don't think" (Participant 46028).

Control over Smoking (QR)

Immediately following questions about free will, participants were asked whether they had control over their smoking. Answers to these questions followed similar patterns to those for questions about free will in general: simple and hedged responses. There was a marked increase in simple responses: most participants were quick to claim that they had control over their cigarette consumption, although some admitted they did not. Examples of simple positive responses to the question "Do you feel in control of your smoking?" included: "Yep" (Participant 46002); "Yes, completely now" (Participant 46027); and "I think so. I think if I wanted to do it, then I would be able to but it is just that I don't want to, because I enjoy it so much" (Participant 46006). Examples of negative responses to the same question included "No, especially over like cigarette addictions. I don't have the free will at all" (Participant 46028); and "No – I allow the addiction to control me" (Participant 46058).

The following is an example of a hedged response, which captures the mindset of someone who is unsure about free will:

> …there is free will, but I don't feel like I have got it a lot of the time … sometimes after the sessions I kind of felt like I had more choice with whether I would smoke or not. Whereas more often than not it is kind of a unconscious or sub-conscious thing where I am just lighting up a cigarette, but at the same time I notice it more – say at work or if I have been doing something for a while – once I get that thought of 'I am going to have a smoke' or I kind of feel like a smoke- there almost ends up being no free will in that because it is like a decision has already been made: You are going to go for a smoke whether it is in the next 30 seconds or the next five minutes – you are going to go for a smoke. But if I am occupied with stuff and don't think about it – but as soon as it is popped in my head, there is kind of no free will about it. (Participant 46022)

No Quit/Reduce (QR) Participants

Participants who did not quit or reduce their cigarette consumption (NQR), provided fewer explanations of free will, making 25 references in total, commensurate with a smaller sample size (n = 16). Unlike QR participants, NQR participants provided predominantly 'hedged' philosophical and political responses to questions about free will. Relatively few 'simple' responses to the question "what is free will and do you believe you have it?" were recorded, including: "Yes, everyone does" (Participant 46023); and "Yeah… The right to do whatever you choose I suppose" (Participant 46066).

Beyond this response, most NQR participants provided hedged explanations of free will including "Free will is … [a] tricky thing… there is free will and then there is

free will in society. Like free will should be whatever you want to do you can do, but society limits that these days" (Participant 46044); or,

> …ultimately I do believe in the ability for an individual to make choice, but I believe that it is like the very tip of an iceberg where most of your body, most of your genetics, most of your mind is kind of pre-determined. I think an intelligent person could probably predict every single choice you make, even though you think you are doing it for yourself. (Participant 46054)

and "As social creatures we have got a limited amount of free will already, because our actions are not only dictated by, but shaped by those around us" (Participant 46065). This final answer in particular was followed by a longer exposition of free will.

As with QR participants, there were also NQR participants who rejected the idea of free will. For example, when asked "do you think that you have free will?' one participant responded:

> To a certain extent, yes … when it comes to my bad habits, I don't think I have the control over them … I don't have control over anything actually … I do believe [in] it but I just don't have it. (Participant 46063)

Finally, again matching QR participant response, there were NQR participants who misunderstood free will, mistaking it for other concepts such as will power:

> I don't think I have ever been strong. I am stubborn, but I am not strong willed. I have always known that if there is something that I wanted to do I really have to work hard to do it. (Participant 46008)

Control over Smoking (NQR)

Regarding control over smoking, NQR participants provided similar responses to those provided by their QR counterparts: simple and hedged responses. NQR participants typically gave 'simple' answers regarding whether they controlled their

cigarette consumption or not. Examples of simple responses from NQR participants include “at the end of the day, it is my decision and I choose to do it” (Participant 46020); “No I don’t [have control]” (Participant 46063); and “Well I definitely don’t have control over [my smoking]” (Participant 46050).

NQR participants provided fewer hedged responses than they had for questions about free will in general. This represented its own unique pattern of responding: free will was ‘complicated’, but control over smoking was simple. Examples of hedged responses from NQR participants included “I know I am addicted to it, but I then say that my free will says I am allowed to be addicted to it” (Participant 46044); “I think I do have control over it, but … I know I am addicted to cigarettes” (Participant 46010); and

> I make this conscious choice to smoke … I only have control over my smoking in the positive sense of the word … I have control over my smoking by smoking a lot. But in the respect of choosing not to smoke, I don’t think I have control over it at all. (Participant 46065)

Summary

Response styles and themes emerging from answers to questions about free will were virtually identical between QR and NQR participants. While there was no difference in the content of responses, there were trends in the tendencies of these responses. Namely, QR participants were more inclined to simple responses than NQR participants, and inversely, NQR participants more inclined to complex understandings of free will and control. The reverse was true when participants were asked about control over smoking specifically: QR participants were more likely to make hedged responses while NQR participants were more likely to offer simplified explanations. Despite these trends, no clear or significant evidence emerged that understanding of

free will shaped response to a hypnotic intervention. There is no strong evidence to indicate that beliefs about free will influence the effectiveness of hypnosis.

5.2.8 Expectations of hypnosis and experience/response to hypnosis.

Section 8 provides qualitative data on the research question: How do reported expectations of hypnosis relate to response to hypnosis? Provided below are themes and examples of responses provided by participants when asked "What did you expect to happen after the hypnosis?" As above, responses have been grouped according to the outcomes quit or reduce (QR) compared with neither quit nor reduce (NQR).

Quit Reduce (QR) Participants

Several themes emerged from the responses of participants who quit or reduced their cigarette consumption (n = 25), including open-mindedness, hope, complete cessation, neutral, and low expectations. In response to a question about their expectations, nearly one third of QR participants described themselves as 'open-minded' and hopeful. For example:

> I came in here with an open mind thinking 'is this going to work? Is it not going to work?' And that is only because of the experiences of the people that I had spoken to. For some it did work and for some it didn't. (Participant 46005)

and "I am very believing of things, and I think that … I will be very open to [new things]. Whether it is hypnosis or Tarot Card reading or something, I will believe that" (Participant 46017). Several QR participants reported feeling hopeful before the hypnosis, stating "I was hoping. Because I had never tried it before and I was hoping that it would work for me, but I didn't want to expect to change" (Participant 46021); "I was hoping desperately that I would stop smoking. That was my main interest" (Participant 46037); and "I was hoping that it was going to be positive" (Participant 46019).

This openness and hope was piqued by several expectations of complete cessation. Several participants made statements about the success they expected from hypnosis, such as "I genuinely thought I will be hypnotised and I won't be able to smoke again" (Participant 46017); "I probably thought that I'd walk out and have no urges to smoke at all" (Participant 46002); and "I was expecting to walk away from – at least the second session – just not smoking" (Participant 46076).

At the other end of the spectrum, the remaining participants expressed neutral or limited expectations of hypnosis. Evidence of neutral expectations included statements such as "I don't think I really had any expectations. I had never done hypnosis before" (Participant 46024); "I didn't really have any expectations. I didn't think about it" (Participant 46052); and "Before the project I came in with no expectations because you don't know. I have never done hypnotherapy, so I didn't know what to expect" (Participant 46058).

Some participants also described limited and low expectations of hypnosis, characterised by statements such as "To be quite honest I had people tell me that it probably wasn't going to work" (Participant 46018); "I was skeptical. I didn't think this is going to work" (Participant 46031); and

> I didn't think it would work because I am not into that hippy-whippy stuff … I genuinely didn't think it would work at all, because I know other people who have done it and it has not worked. I don't know, it is very weird. I can't explain it. (Participant 46027)

One participant even expressed apprehension about the process, stating "I was actually worried that … some crazy, deep dark secret would come up" (Participant 46016).

No Quit Reduce (NQR) Participants

Several themes also emerged from the responses of participants who did not quit or reduce their cigarette consumption (n = 16). These themes mirrored many of the themes emerging from QR responses, but were constituted differently. Significantly fewer NQR participants described positive expectations for the hypnosis. For example one single NQR participant described herself as open-minded, stating "I really didn't know what was going to happen. I was quite open-minded" (Participant 46075), and only one participant described himself as hopeful, stating "I was skeptical but I was hoping that it would work" (Participant 46020). This was a significant and noticeable difference in the descriptions of participants.

Also unlike QR participants, significantly more NQR participants reported expecting success and complete cessation. NQR participants reported expecting immediate and absolute results, for example "I thought it was going to click a tick and then it was all going to stop and that I am going to see them and think of death or something" (Participant 46010); and "I was expecting that I would go under a trance and I would walk out of here and I would never smoke again" (Participant 46044). One participant even remarked, "I actually expected something else. I expected me (sic) to go under and this whole new person [come back]" (Participant 46066). These responses demonstrate the greater, and potentially unrealistic, expectations of NQR participants.

Much like QR participants, a group of NQR participants described no expectations, stating literally "Nil expectations" (Participant 46023); "[I] didn't really have any [expectations]. Like I just thought if it worked, that would be good. But if it didn't, I wasn't that bothered" (Participant 46055); and "I thought maybe it could work, maybe it couldn't" (Participant 46057).

Much like QR participants, there was also a significant portion of NQR participants who described negative expectations of hypnosis, for example: "I was a bit cynical about hypnosis … [and] didn't think that I could be hypnotised" (Participant 46033); "I didn't expect for it to really change anything you know" (Participant 46054); and "My expectations were that I probably won't quit smoking" (Participant 46065). As with QR participants, one NQR participant also described apprehensive expectations about hypnosis, stating "I was a little bit almost concerned that it would, maybe like 10% [concerned] that it would work and that I wouldn't be able to enjoy smoking any more" (Participant 46015).

Summary

While the themes emerging from answers to questions about expectations were virtually identical between QR and NQR participants, there were noticeable discrepancies in the frequency of their presentation. Namely, QR participants more frequently described hopeful expectations than NQR participants. Paradoxically, NQR participants described the expectation of complete cessation and success more frequently than QR participants. These results provide auxiliary evidence that expectations of QR and NQR participants are different.

5.2.9 A discussion of 'change' following hypnosis.

Section 9 provides qualitative information regarding an additional, exploratory hypothesis regarding the experience of change following hypnosis.

Participants were not directly asked about change during the short interviews, though several referred to the process of change and how it took place. In order to further understand how hypnosis works, and answer the additional research question *'in what ways do participants experience change?'* provided below are references to

'change'. The references are made by participants who did experience change (i.e., QR), since by definition NQR participants did not experience change.

Several themes emerged in reference to change, including both references to the manner of the change, and to the quality of the change itself. Regarding the manner of change, several participants reported that it was 'effortless' and immediate, while others described it as short-lived. For example one participant stated "It hasn't been a struggle to quit smoking. It is not something I think about. I just go about my day now, smoke free" (Participant 46005); another "It doesn't even come to the front of my head. I don't even think about smoking" (Participant 46019). The same sentiment was reflected by other participants, stating "I woke up the next day, I didn't want a bar of them" (Participant 46016), and "that whole thought process is gone [now]" (Participant 46030).

Some participants who described the change as short-lived referred to specific and memorable moments when they began smoking again, for example:

> It was just a Thursday night, my roommate had a cigarette and I just went out and had one with him. And then kind of like opened the floodgates again to it. So I actually started smoking one cigarette a day after dinner for a while, just with my roommate. (Participant 46017)

Others were less clear about the moment: "I pretty much stopped. I was only having the occasional one when I was drinking. And then something happened where I just started smoking again" (Participant 46021); and "slowly, slowly it just wore off as it got further away" (Participant 46022).

Participants who described the nature of the change after hypnosis referred to changes in their thinking, feeling, and behaviour. For example, one participant reported being constantly "preoccupied" with the thought of smoking, and whether or not she

wanted a cigarette (Participant 46024), while another described being "more conscious" of her desire to smoke, but more aware that it was unnecessary (Participant 46058).

One participant who described changed feelings referred to a shift away from negative affect about smoking, stating,

> I am not so negative towards [smoking] … [feeling] bad for smoking … maybe I am a bit more carefree about it … I don't feel so, almost upset that I am a smoker, probably because I haven't been smoking as much. (Participant 46048)

Other participants described less pleasure from cigarettes, and growing pleasure from being able to talk about quitting with others (Participants 46002 and 46037). There were also participants who reported feeling and thinking the same way about smoking, but "I just don't [anymore]. It is very bizarre" (Participant 46027). In contrast to this, there was at least one participant who reported a dramatic change in their behaviour overall, describing change in their productivity, drinking behaviour, and activity. He stated "I have just been doing a lot more. I don't know if it is anything to do with [the hypnosis] but I have just been doing a lot more than I have ever done before" (Participant 46028).

While NQR participants generally did not report or describe change, note that at least one NQR participant reported a significant change in their feelings about smoking, stating:

> I hate it [now]… I suppose in the last two months I have thought: These cigarettes aren't doing anything different to me, so I can keep smoking. Even though now my head is going 'I don't want to have them'. I don't like having them. Where before I wasn't. I would still enjoy it. But I just can't stop … It makes me feel weaker. I feel like now that smoking has more of a hold on me – than

before. Because before I guess I wasn't visualising it, I wasn't thinking about it, whereas now I… don't want to smoke. (Participant 46008)

Summary

Several participants who significantly reduced or ceased their cigarette consumption following the hypnotic intervention described experiencing various changes in the time after the intervention during the follow-up interview. These changes included how the change took place, and the nature of the change. Changes in thoughts and feelings about smoking were those most commonly reported.

5.2.10 Case studies of unique and significant participants.

This section provides qualitative data derived from interviews with several participants whose results demonstrated congruence and incongruence with the traditional intention-action paradigm of behaviour. There are cases of participants achieving expected results, however, the cases of those participants who did not intend for but achieved a reduction in their cigarette consumption, or did intend for but did not reduce their cigarette consumption, could be revealing. Examining their short interviews could provide insight into the successful practice of hypnosis, and traits facilitating successful hypnosis. Table 5.3 (below) outlines which cases have be used to highlight which combinations of results. The quadrants containing incongruent cases have been highlighted.

Table 5.3

Congruent and Incongruent Result Cases

Characteristics	**Quit / Reduce (QR)**	**No Quit / Reduce (NQR)**
NIQ/AMB	46024 46030	46044
ITQ	46027	46023 46020

Provided first are the cases of participants who reported no intention or ambivalence toward quitting smoking, but recorded significant reductions in their cigarette consumption following hypnosis. Participant 46024 is NIQ whose recorded cigarette consumption and Smokerlyzer reading were both lower at stage two than they had been at baseline. During the follow up interview, Participant 46024 reported continued enjoyment from smoking, and that she found it relaxing and social. She described unspecific/unclear expectations of hypnosis, but that she had found it very relaxing, stating "I have never been so relaxed in my life". Participant 46024 also provided a good recollection of the hypnosis, citing specific events from the script. Significantly, Participant 46024 reported that following hypnosis, she had become more 'conscious' of her smoking, which is to say that she became aware of the cognitions that pre-empted cigarettes, and began challenging whether smoking was automatic or 'willed'. She also reported that she believes hypnosis works if "you want it to. If you believe [in] it". She provided an unremarkable definition of free will as "the ability to make your own decisions", and suggested that she did have control of her smoking because "if you really wanted to quit, you would quit, right?"

Participant 46030 also recorded ambivalence towards smoking cessation and reported no interest in ceasing smoking during the follow up interview but recorded a reduction in her cigarette consumption from 60 cigarettes per week to "1". Her smokerlyzer reading shifted from 13 ppm to 7 ppm, and eventually down to 3 ppm at stage 3. In regards to her intentions, Participant 46030 stated "I was just so hell-bent on like - 'I don't want to give up'" during the follow up interview, also indicating that she had only come for "my Mum really". In regards to smoking, Participant 46030 indicated that the "whole thought process" was now "gone", and that she now found smoking a "turn off" and "gross". She also referred to apprehension prior to the hypnosis, but otherwise she didn't really know what she expected from the process; she "didn't think about it". She also reported that she smoked two cigarettes immediately following the hypnosis, but did not think about smoking for some time since then, referring to a packet of cigarettes that had been sitting in her house for six weeks. Participant 46030 also reported that she did not want to 'overthink' the process, and had therefore not developed any strong ideas about how hypnosis or free will worked, and was "happier just to not know".

Provided second is Participant 46044 who recorded no intention to change his cigarette consumption and accordingly did not achieve any significant change. He reported smoking 10 cigarettes per day at stage 1, and this quantity remained identical at stage 2, although he reported only smoking half a cigarette on occasion – a fact not reflected in the data. Participant 46044 reported expecting to "go under a trance and … never smoke again", and described the experience as relaxing and "interesting". In regards to a understanding of hypnosis, he suggested that it might work best for people who "have that 'want' to quit", but that he or she "can't be told to do something". He described an advanced, hedged version of free will, referring to both philosophical and

legal constructions of freedom, adding that he or she was 'addicted to smoking by choice'. When this contradiction was pointed out, Participant 46044 indicated he had not recognised the inconsistency in his thinking previously.

Provided third is Participant 46027 who recorded the intention to change her cigarette consumption, and reported achieving this: reducing from 6 cigarettes per day and 40 cigarettes per week, to 0 cigarettes per day and 0 cigarettes per week. She recorded smokerlyzer readings of 3 ppm at stage 1, 2 ppm at stage 2, and 2 ppm at stage 3. She described smoking after the first session of hypnosis, but no longer enjoying the taste or smell, and eventually 'hating' it after the second session. Participant 46027 reported confusion since, although she hated the smell and taste of cigarettes, she still 'liked the idea' of them: the social aspects, the feeling. She described low expectations of hypnosis, stating "I am not into that hippy-whippy stuff". She provided a simple and incomplete explanation of hypnosis stating, "you go into a relaxed state and your subconscious, I don't know. No idea… I don't know". She also provided a simple and uncertain explanation of free will: "doing something because you want to do it?" Although Participant 46027 recorded a desire to change he or she also reported that quitting smoking was a decision "made for me due to the hypnotherapy", and "I wouldn't have quit smoking if I hadn't done [hypnosis]".

Provided fourth is Participant 46023 who recorded the intention to change his smoking, but also noted during the follow up interview that he both 'did and did not' want to quit smoking. No significant change in his cigarette consumption or smokerlyzer readings was recorded, between stages 1 and 2. He reported smoking between 30 and 50 cigarettes per day at stage one, and this number remained at 50 cigarettes per day at stage 2. He reported having nil expectations of hypnosis beforehand, although he also stated that he had in his "mindset that [hypnosis] doesn't

work for smoking". He described the experience as relaxing, but there had been no obvious change in his cigarette consumption since. He described no clear theory of how hypnosis worked, and while suggesting that free will existed, did not clearly articulate what it was. Participant 46023 also reported that, for him, smoking was an addiction that he did not have control over.

Participant 46020 also recorded the intention to quit smoking, but did not record a significant change in his smoking after hypnosis. Participant 46020 reported that he smoked 3 cigarettes per day, and 20 per week at the beginning of the study, but by stage 2 these numbers had not changed. Although he reported a brief change in cigarette consumption following the first session of hypnosis, he advised that this change had not been sustained. When discussing outcome expectations, he reported a mixture of skepticism and hope; and in regard to the sessions themselves, he provided a vague recollection of the sessions. When asked about hypnosis, he plainly stated "I don't believe in it, but … obviously for some people it works", before attributing his own failure to skepticism. He provided a simple, political-oriented explanation of free will ("your right to live your life how you want to"), and stated that he had control over smoking, and smoked because he wanted to. Despite no change in his smoking, Participant 46020 reported fascination with the brief success of hypnosis.

Analyses

While no apparent themes emerged from the analyses, there were trends in the responses. One trend emerged from participants who achieved quitting or reducing. These participants provided simple and undeveloped explanations of hypnosis and free will, irrespective of their intention to quit smoking. While this trend was apparent amongst QR participants in general, it is salient and worthy of noting that the trend

transcended intention, presenting amongst NIQ and AMB participants who reduced cigarette consumption as well.

Another, more expected trend was observed amongst participants who did not achieve a reduction in their cigarette consumption. That trend involved skepticism and doubt about hypnosis as a technique. Participants who expressed skepticism or doubt about hypnosis typically experienced short-lived or insignificant changes in their cigarette consumption, irrespective of their intention to quit smoking. Note that evidence for this trend transcends intention, such that participants who reported the intention to quit (ITQ) but perceived hypnosis skeptically did not achieve results. The inverse of this trend was also true: participants who experienced quitting or reduction in their cigarette consumption seldom described skeptical ideas about hypnosis.

Another, less well-evidenced trend emerged from the analyses. Participants who intended to quit and successfully reduced or ceased smoking also tended to describe results that had not been scripted for. For example, more than one ITQ-QR participant described changes in their perception of cigarettes (e.g., taste or smell). No suggestions in the script specifically addressed changes in the taste or smell of cigarettes, and therefore it is salient that more than one ITQ-QR participant would report this result.

Summary

Several participants recorded results that were incongruent with the traditional free will-behaviour paradigm, such that changes to their cigarette consumption after hypnosis contradicted their original, reported intention. A comparison of incongruous results with congruous intention-action results has been provided above, revealing evidence of modest trends. One trend emerged from participants who achieved quitting or reduction in their cigarette consumption. These participants tended to provide

simple/simplistic explanations of the complex ideas involved in hypnosis and free will. A second trend emerged from participants who did not achieve significant changes in their cigarette consumption. These participants were inclined towards negative and skeptical opinions of hypnosis, irrespective of their intention to quit or reduce smoking.

5.3 Summary

Quantitative and qualitative analyses have revealed several features of the data. Participants who recorded no intention to quit or reduce their smoking reported a significant reduction in their cigarette consumption after hypnosis. When compared with participants who did intend to quit or reduce, the results of participants with no intention to change were not significantly different. A measure of intention did, however, predict change in cigarette consumption after hypnosis, and there was evidence that intention remained stable throughout the study. Finally, jungle-type beliefs were associated with and predicted changes in cigarette consumption such that they increased as cigarette consumption decreased. Baseline measures of jungle-type beliefs did not, however, predict change in cigarette consumption after hypnosis.

Theme and trend analyses provided evidence supporting and expanding on the quantitative results. Several participants who reported no intention to change their cigarette consumption described confusion about their subsequent behavioural change. The discussion of cigarette consumption by participants who did not intend to change resembled the same discussion by participants who did intend to change. Generally, there were no references to smoking-related, self-exempting beliefs, and therefore there was no relevant, qualitative evidence to support the quantitative data.

In addition to qualitative evidence supporting quantitative findings, qualitative analyses revealed several emerging trends to address additional research questions. Participants who did reduce their cigarette consumption were typically inclined to

consider intention a crucial factor to successful hypnosis, simplifying explanations of free will and control, and referring to hope when discussing expectations. Conversely, participants who did not reduce cigarette consumption were more likely to describe subconscious processes when explaining hypnosis, provide more complex and more detailed explanations of free will and control, and expect 'complete cessation' of smoking following hypnosis. An analysis of unique cases also indicated that participants who did not achieve a change in their cigarette consumption tended to have skeptical opinions of hypnosis prior to undergoing the experience.

Chapter 6: Discussion

Previous studies provided contradictory evidence that hypnosis both could and could not counteract free will, depending on how free will was defined and measured. Evidence from older aversive-design studies typically suggested that hypnosis could be used to coerce participants into unsafe or atypical behaviour. Evidence from counter suggestion-design studies typically demonstrated that hypnosis could not control participants' behaviour.

The present study used a new experimental design to test the role of free will in hypnosis. The broad aim was to draw attention to and improve the current understanding of the mind-behaviour relationship. The specific aim was to test the ability of hypnosis to change smoking behaviour when a participant had no intention to change that behaviour. In the discussion below each hypothesis is addressed, results summarised, and comparisons with the existing literature made.

It was hypothesised that:

6) Participants who did not intend to quit/reduce/alter their smoking behaviour would do so following a simple, two-session hypnosis intervention.
7) Participants who smoked and intended to quit/reduce/alter their smoking behaviour would do so at a greater rate than participants who did not, following a simple, two-session hypnosis intervention.
8) A continuous measure of intention would predict changes in cigarette consumption.
9) Measures of intention would change following a simple, two-session hypnosis intervention.

10) Measures of smoking-related beliefs would correlate with changes in smoking behaviour following a simple, two-session hypnosis intervention.

Several exploratory research questions (without specific hypotheses) were also posed in order for inform the primary hypotheses. These were:

11) Would beliefs about hypnosis be associated with changes in reported smoking behaviour following a simple, two-session hypnosis intervention?
12) Would beliefs about free will correlate with changes in smoking behaviour following a simple, two-session hypnosis intervention?
13) Would (retrospective) expectations about hypnosis correlate with changes in smoking behaviour following a simple, two-session hypnosis intervention?
14) Would there be differences in how behaviour change was experienced following a simple, two-session hypnosis intervention?

6.1 No intention and Hypnosis for Behaviour Change

The results of the present study supported the hypothesis that participants who do not intend to quit or reduce their smoking (NIQ) would (still) record a reduction in their cigarette consumption following a hypnosis intervention for smoking behaviour. Between-subjects, repeated-measures ANOVA indicated a significant reduction in daily [$F(1,11) = 5.22$, $p = .043$] and weekly [$F(1, 11) = 79.08$, $p < .001$] self-reported cigarette consumption following the simple, two-session hypnosis intervention. Changes in self-reported cigarette consumption were statistically significant, but changes in an objective measure of cigarette consumption (smokerlyzer scores) were not.

Participants' self-reported cigarette consumption was significantly lower eight to twelve weeks post-intervention than it had been at the time of intervention. On average NIQ participants reported reducing from 8.86 cigarettes per day to 5.69 cigarettes per

day after the hypnosis intervention. Qualitative data also supported the finding. Several participants who recorded no intention to alter their cigarette consumption described changes in their smoking behaviour.

Participant intention was defined in two ways. First is their score for item 1 on the Stages Of Change Readiness And Treatment Eagerness Scale (SOCRATES): "I really want to make changes to my smoking". Second is their score on the SOCRATES subscale Recognition.

If intention is indicative of free will, this result could be used to argue that hypnosis is capable of counteracting free will. The result aligned with evidence from aversive studies, which suggested that hypnosis can counteract free will and coerce participants into behaviour that they do not intend for. Rowland, for example, found that he could 'make' hypnotised participants attempt to touch a dangerous snake (Rowland, 1939), or Levitt 'made' his participants burn a page from the bible (Levitt et al., 1975). Like these studies, the present research 'made' participants reduce their cigarette consumption.

Unlike the experimental designs of these studies however, which measured changes in immediate behaviour (i.e. touching a dangerous snake, bible-burning), the present study tested for behaviour sustained over time.

Change in cigarette consumption was most significant in the time nearest to the hypnosis intervention. Change in self-reported cigarette consumption was significant in the 2-3 months after the intervention but not 6 months after. These results suggest that the effect of the hypnosis weakened in the weeks and months after the intervention. This conclusion was supported by the qualitative data, in which participants reported immediate but declining change in their behaviour after the intervention.

In addition to this, participants were not primed with specific information, as was the case in Spanos et al. (1985). Their research showed that priming participants with specific information could dramatically change the effectiveness of the hypnosis. The present study did not employ any priming to negate the risk of conflating hypnosis and priming effects.

All of this is to say that the results of the present study represented a conservative estimate of hypnosis' ability to effect unintended behaviour. The efficacy could be improved by increasing 'dosage' or by adding priming information, for example.

Alternatively, the results of the present study could be used to argue that the conventional understanding of free will is false. The results suggested that free will is not necessary for behaviour change. This is in contrast to the conventional understanding of free will, which suggests that free will is the ultimate determinant of all behaviour. Researchers and authors like Libet and Wegner (Libet, 2003; Wegner, 2002) argued that conventional notions of free will and mind-behaviour explanations are inaccurate. The results of the present study could be used to support their arguments. This will be discussed in greater detail below, in the context of other results from the present study.

Not all of the results supported these arguments. Unfortunately, changes in the self-reported smoking of NIQ participants were not supported by significant changes in smokerlyzer scores: the physiological measure of cigarette consumption. Although smokerlyzer measurements of exhaled carbon monoxide content did reduce, the reductions were not significant. This is important because research participants are prone to overestimating and over-reporting changes in their behaviour. It is the reason that physiological measures are employed: so that participants know their self-reported

scores will be assessed for accuracy (Patrick et al., 1994; Ramo et al., 2011). Since changes in smokerlyzer scores were not significant, there is evidence that participants exaggerated the change in their cigarette consumption, and that actual change in smoking behaviour may be overestimated.

Furthermore, no NIQ participants in the present study completely ceased smoking cigarettes. This is important since the goal of the intervention was total smoking cessation. It could be argued that failure to achieve this 'behaviour' equates to total failure of the hypnosis intervention. Those who adopt this position might also argue that the changes in cigarette consumption were simply due to regular fluctuations in behaviour, the likes of which Ajzen experienced so much difficulty accounting for (Ajzen, 1985, 2011, 2015).

Despite these results, changes in reported cigarette consumption and smokerlyzer readings showed similar trends in reduction. While they did not reach significance, smokerlyzer scores also trended downward. This implied a change in objective behaviour, albeit not a significant one. It is also important to note that smokerlyzer scores only represent cigarette consumption in the 48 hours prior to breath sampling. The lack of significant change in smokerlyzer scores could be explained by a bias in the data collection. Many follow up breath samples were taken on Saturday mornings. Combined with the assumption that Friday night is a popular time for casual cigarette consumption, it might have been that participants had actually reduced their consumption overall, but this was not accurately reflected in the smokerlyzer data.

6.2 No Intention Compared with Intention

The results of the present study did not support the hypothesis that participants with the intention to quit (ITQ) would achieve greater changes than participants with no intention to quit (NIQ). The results of between-subjects, repeated measures ANOVAs indicated that changes in cigarette consumption between groups were not significantly different for reported daily [F (1,35) = .310, p = .581] or reported weekly [F (1,33) = .976, p = .330] cigarette consumption. Reductions in cigarette consumption were not statistically different between participants who did and did not intend to quit, in the 8 to 12 weeks following the simple, two-session hypnosis intervention for smoking behaviour.

Smoking behaviour was measured in two ways: self-reported per day and per week, and objectively by a measure of exhaled carbon monoxide using a device called a smokerlyzer. As mentioned above, objective measures such as smokerlyzer scores help to validate self-report data (Patrick et al., 1994; Ramo et al., 2011).

Both measures were recorded once immediately before the intervention, and again approximately 8 to 12 weeks post-intervention. The analyses did not reveal significant differences between the ITQ and NIQ participants on any of these measures. It is also noteworthy that all study participants achieved a statistically significant reduction in their reported cigarette consumption following the hypnosis intervention. ITQ and NIQ participants alike achieved a significant change in their smoking behaviour. Although the qualitative data did not specifically address this hypothesis, it supported the results of the quantitative data as well: ITQ and NIQ participants described reductions in their cigarette consumption following the hypnosis intervention.

This result challenges existing theories of hypnosis and free will, and assumptions about the mind-behaviour relationship. First, the results suggest that

intention is not required for hypnosis to effect behaviour change. Moreover, participants who intended to quit did not achieve significantly better results than participants who did not intend to quit. This result contradicts the common claim that hypnosis clients must want to change their behaviour in order for hypnosis to be effective, and that the more you want to change, the greater the change.

One possible explanation is that hypnosis is altering literal, neurophysiological consciousness: the position advocated by those who maintain state theories of hypnosis. If consciousness is intrinsic to selecting and executing free will, and hypnosis alters consciousness, then hypnosis would disrupt free will. As stated in Chapter 2, Libet bound free will and consciousness because if free will is not conscious it cannot be considered in the control of an individual (1965b, p. 85). This argument is supported by neuro-imaging studies that show unique neural activity during hypnosis (Landry & Raz, 2015; McGeown et al., 2012).

Qualitative results also suggest that consciousness had been altered during or after hypnosis. Although neural processes are not conscious, several participants demonstrated difficulty reporting or 'consciously accessing' how their cognition had changed following hypnosis. One stated "It is really like it is not… I don't know" (Participant 46009) for example, and another stated "I guess it is just that you go into a relaxed state and your subconscious… I don't know… no idea (Participant 46027). Neurophysiological measures of consciousness were beyond the scope of the present study; however it is reasonable to infer that the effect of hypnosis was partly unconscious. It goes without saying that advances in technology will dictate how well physical consciousness is understood, and future research in this field would benefit from tools for measuring experiential consciousness.

Another possible explanation for the results is that free will is currently misunderstood. If a reported intention is indicative of free will, evidence from the present study suggests that free will does not meet the criteria of its own definition. Participants in the study behaved in a way that was 'controlled by something other than their self'. Participants who had not intended to quit or reduce their smoking reduced their cigarette consumption following hypnosis.

The misunderstanding might be that free will is considered all-powerful and absolute, and perhaps neither of these is true. Free will might be less than all-powerful and vary by degree. Behaviour is typically considered either free or caused, but perhaps there are gradations between these two poles or degrees in its freedom.

Previous studies had not considered free will in this way. Rowland (1939), for example, never measured behaviour in degrees. The degree to which participants reached for the snake was never measured, only whether they did or not. Similarly, Levitt et al. (1990) never measured the extent to which participants nodded or levitated their arms, only whether they did or not, in a binary way. In the present study cigarette consumption was measured, providing a variable rather than binary measure of behaviour. Had previous researchers measured behaviour in degrees, their results might have also reflected variability in behaviour.

Another way that free will might be misunderstood is that it might not be unified. Free will is typically considered to consist of a single intention. However multiple and competing intentions might co-exist. Again, previous studies did not consider free will in this way. Rowland (1939), for example, assumed that without hypnosis, participants would not attempt to touch a dangerous snake. He assumed that the default intention would be to 'remain safe'. Counter-suggestion studies like those of Levitt et al. (1990) assumed participants would obey instructions given before

hypnosis, and experience a conflict when faced with hypnotic suggestions to the contrary.

While aversive studies like Rowland's achieved mostly conclusive results, many counter-suggestion studies resulted in mixed and ambiguous results. Levitt et al. (1990) for example, experienced difficulty achieving conclusive results. In one study, 12 participants were offered $100 incentive to resist a single suggestion during hypnosis but only 6 resisted. The other 6 completed the hypnotic suggestion despite the instruction and incentive not to. The researchers believed this might be because the participants were 'hedging their bets', torn between 'trying' hypnosis and resisting it.

Decades earlier, Hilgard (1963) too found 'hedged' results. After instructing participants to resist two suggestions during hypnosis, 6 participants resisted both, while 5 participants resisted only one suggestion, and 1 participant did not resist either suggestion despite being instructed before hypnosis to do so.

Another study with 'hedged' results was that of Spanos et al. (1985). In the study, as mentioned above, some participants received priming information about resistance as a mark of deep hypnosis. Those who were primed with the information that resistance was a mark of deep hypnosis resisted, while those who were primed with the information performing the suggestion was a mark of deep hypnosis did not resist. There were two other groups in the study though: a control group who were not primed with any information and another group who were primed with ambiguous information. While the groups primed with information about deep hypnosis mostly performed or did not perform suggestions according to the information they had been primed with, the group primed with ambiguous information 'hedged' their bets, performing and resisting suggestions in approximately equal number. Perhaps all

behaviour is possible until the mind is primed, or perhaps behaving requires the mind to be primed. Priming, in various forms, could determine much behaviour.

In any case, the quantitative evidence suggested that hedging might have again taken place in the present study. NIQ and ITQ participants both reported and demonstrated reductions in their cigarette consumption without completely stopping. If participants had all completely quit smoking, the intervention would have been considered a 'complete' success. Whereas if no participants had changed their smoking, the intervention would have been considered a complete failure. The final result lay somewhere in the middle. By reducing their smoking, but still continuing to smoke some cigarettes, participants were simultaneously performing and resisting the suggestions made during hypnosis. Participants simultaneously changed and maintained their behaviour. The typical response of participants to the intervention was 'hedged' between completely quitting smoking and maintaining the level they reported at baseline.

Data from the qualitative analyses provided useful insight into the hedged results. One theme emerging from interview transcripts was that of mixed intentions, in which participants reported experiencing both the intention to quit smoking and the intention to continue smoking simultaneously. For example, one participant stated "there was a part of me that wanted to, but there was still a part of me that said I am not ready" (Participant 46020), while another stated "I enjoy [smoking] but I don't want to smoke" (Participant 46066). These statements might have previously been explained by a difference between what one wants to do and what one ought to do, but they might be more usefully framed as competing and contradictory intentions. In this instance demonstrating both the intention for pleasure and the intention to be healthy. The qualitative data suggested that hedged results might be explained by the existence of

multiple intentions which could also contradict one another. Per this understanding, it is possible to both intend for something and simultaneously intend for its opposite.

For the purpose of distinguishing between the two, the intention that aligns with the existing behaviour is referred to as the *primary* intention, while the competing intention is referred to as the *mirrored* intention. In the instance of a person who smokes, their primary intention might be to smoke, while their mirrored intention is to be healthy. The mirror intention mirrors or opposes the primary intention. This idea might have been known by different names in different theories, such as 'resistance' for example.

It is the proposal of this thesis that for any and every behaviour, there is both a primary intention and a mirrored intention. Every completed action or behaviour has been both intended and unintended, to some degree. For every intended action its opposite is also intended to some degree.

Consider the example given in Chapter 2: the intention to eat a sandwich. I might intend to eat a sandwich. However while intending to eat a sandwich the mirrored intention, not to eat a sandwich, will exist simultaneously. If I would like to lose weight, or save money, or I cannot be bothered moving from my position on the couch, I will have the intention not to 'behave' in the very way I simultaneously intend to.

This might explain why free will has been so difficult to articulate, study, and validate. If every action or behaviour is both intended for and unintended for, free will cannot exist. If every possible outcome is intended for, no role is left for free will to play. Free will would be an artefact of behaviour: the semantic function of a singular reality.

Mirror intentions align with the work of Schurger et al. (2012), who argued that neural activity commensurate with behaviour is frequent and that only some of this activity actually results in behaviour. The results of the present study support this idea.

Inconsistent neurophysiological activity could be associated with multiple intentions. This idea would benefit from further research.

It is the position of this thesis that there are primary and mirror intentions for any and every single behaviour, woven into a complex network of other competing intentions. With further research, this understanding of intentions could explain the inconsistent relationship between intention and behaviour discussed above (Ajzen, 1985; Wegner, 2002). In regards to research, constructing free will and intention in this way could facilitate a new and more coherent explanation of the mind-behaviour relationship. In regards to psychological interventions, mental health professionals might benefit from acknowledging and attending to mirror intentions, since there must be intentions 'mirroring' and therefore blocking therapeutic outcomes.

6.3 Degree of Intention and Hypnotic Efficacy

The results of the present study supported the hypothesis that scores for intention would correlate with reductions in cigarette consumption 8 to 12 weeks after a simple, two-session hypnosis intervention for smoking behaviour. Correlation analysis revealed a significant relationship between scores for item 1 of the SOCRATES ("I really want to make changes in my smoking") and changes in reported cigarette consumption (r_S = .438, p = .007). There was also a significant correlation between the Recognition subscale of the SOCRATES and reported daily cigarette consumption (r_S = .468, p = .004), but not between the Ambivalence or Taking Steps SOCRATES subscale scores and reported daily cigarette consumption.

It is important to note that only one of the three SOCRATES subscales (Recognition) correlated significantly with changes in cigarette consumption, but that the Ambivalence and Taking Steps subscales were considered less representative of

intention. Item 1 of SOCRATES and The Recognition Subscale were considered the most representative, since they refer directly to intentions rather than ambivalence or behaviour.

In contrast to the results discussed in Section 6.2, these results suggested a relationship or interaction between intention and hypnosis efficacy. It suggested that although the appropriate intention is not necessary for effective hypnosis, it might improve hypnosis efficacy.

Three explanations of the results listed in sections 6.1 and 6.2 were discussed in section 6.2. In regards to these explanations, hypnosis has a minimum baseline effect irrespective of intention, but becomes increasingly effective as intention increases. This explanation remains commensurate with a neurophysiological explanation of hypnosis' effect, especially considering it is unlikely the brain works in absolutes. This process might be part of experiential consciousness or not (unconscious), or some combination of both. Regarding free will and intention, this result supported the argument that free will and intentions vary in degrees. Moreover it supported the notion of mirrored intentions since various competing intentions would result in graduated rather than absolute results.

Qualitative analyses did not indicate any obvious or significant differences in how NIQ and ITQ participants described their intentions during the follow up interview, 8 to 12 weeks after the hypnosis intervention. However, some participants differed in their descriptions of behaviour change. ITQ participants were more emphatic when describing their behavioural changes, for example, stating "[I] Just completely like stopped" (Participant 46072), "way less" (Participant 46016), and "smoking very *very* little " (Participant 46018). NIQ participants were not emphatic, even though their results were not statistically different. This result supported the quantitative finding

that appropriate intention is not required for hypnosis to facilitate behaviour change and suggested that it can accelerate it. By describing the change in their cigarette consumption this way, the qualitative data suggested that ITQ participants experienced more significant and evident changes in their behaviour.

The limitations of previous studies were discussed above and pertain again here. Researchers have tended to assume intention rather than measure it. The degree to which participants wanted to 'not touch a snake' was never measured (Rowland, 1939), nor was their intention to abide instructions, for example (Levitt et al., 1990). Comparable data was not collected. However if data had been collected, there is evidence in the current study to suggest that a measure of 'fear of snakes' for example, or intention, would share a relationship with hypnosis efficacy. The finding suggested that although it was not required, free will and intention still played a positive role in behaviour and behaviour change: free will is not entirely 'an illusion' (Wegner, 2002). This combination of qualities (not necessary, but favourable) could also contribute to the difficulty theorists have experienced developing theories that account for intention in the production of behaviour (Ajzen, 1985, 1991, 2011). Free will and intention have typically been considered necessary for behaviour. Evidence from the current study suggested that they are not, but that they are factors amongst many in the production of human behaviour.

6.4 Stability of Intention

The results of the present study did not support the hypothesis that intention would change following the hypnosis intervention. A between subjects, repeated-measures ANOVA indicated no significant change in three out of four measures of intention before and after a simple, 2-session hypnosis intervention. Only scores for the

SOCRATES subscale Take Steps significantly changed in the 8 to 12 weeks following the intervention (F (1,35) = 22.16, p < .001).

Item 1 on the SOCRATES ("I really want to make changes to my smoking"), and SOCRATES subscale scores (Recognition, Ambivalence, and Taking Steps) were used to measure intention. Only the SOCRATES subscale Taking Steps changed significantly after the hypnosis intervention. The Taking Steps subscale measured self-reported behaviour, rather than cognition or emotion for example. Items of the Taking Steps subscale include "I have already started making some changes in my smoking", and "I am actively doing things now to cut down or stop smoking". The significant change in scores on the Taking Steps subscale continued a trend of changes in behaviour without changes in 'the mind'. Recorded and reported changes in behaviour without recorded changes in problem recognition or ambivalence towards smoking, suggested that mind and behaviour functioned separately and that hypnosis could affect behaviour without affecting the mind.

This result provides insight into the mechanism of hypnosis. There are two possible explanations: either hypnosis acted by changing behaviour directly, or via intention, which in turn changed behaviour. The results supported the former explanation since a significant change in intention did not accompany the significant change in reported behaviour. What participants wanted did not change suddenly after the hypnosis intervention, only their behaviour changed.

Intention did not increase or decrease following the hypnosis intervention. This too aligns with results discussed in section 6.2 suggesting that hypnosis did not affect intention. Section 6.3 suggested that the greater the intention, the greater the change in cigarette consumption. The results of this section suggested this was only true for baseline measures of intention.

The qualitative data provided mixed evidence for the quantitative results. When discussing changes in their smoking behaviour, some participants described significant changes in their intentions, while others did not refer to it at all. For example, one participant who described a significant change in his intentions stated

> When I agreed or showed interest in doing the hypnosis … I came on the basis that *I didn't want* to quit smoking. Which I didn't at the time … But, I am just smoking. I am just going for it … I don't want to smoke and I don't have control over it … *I want to quit* [now] but … I don't know whether I am just being a – I want to quit but it is easier to keep smoking. (Participant 46050) [emphasis added]

Another stated:

> Before I didn't hate it. Before, it didn't really worry me too much. Now, whenever I have a cigarette I hate it … but I still smoke. Even though now my head is going: I don't want to have them. I don't like having them. (Participant 46008)

In contrast, a participant who did not refer to changes in their intention following the hypnosis intervention stated "It just doesn't enter my brain … anymore, at all. Just the whole … thought process is gone … it is strange" (Participant 46030).

The limitations of previous studies were discussed above and pertain again here. Researchers have tended to assume intention rather than measure it. No previous studies were found that examined changes in intention before and after hypnosis. The present study suggested that hypnosis does affect behaviour, and its effectiveness is partly related to intention, but hypnosis does not affect intention. It might bypass it all together. This explanation would fit with neurophysiological evidence that hypnosis is associated with increased regional cerebral blood flow, mostly in the occipital lobe but to a lesser extent in the frontal cortices too (Rainville et al., 1999). The frontal lobes are

typically associated with executive functioning and therefore decision; lower activation in the frontal cortices could be part of the process by which hypnosis bypasses decision-making.

6.5 Role of Beliefs towards Smoking

The results of the present study partly supported the hypothesis that beliefs about smoking would relate to changes in the recorded number of cigarettes smoked after a hypnosis intervention. One of four subscales (the Jungle subscale) of the Self-Exempting Beliefs Questionnaire (SEB-Q) significantly negatively correlated with changes in reported cigarette consumption following a simple, two-session hypnosis intervention (r = -.390, p = .017)

Beliefs about smoking were measured by four different subscales in one questionnaire: the Self-Exempting Beliefs Questionnaire (SEB-Q). The subscale with a significant relationship to reported cigarette consumption was the Jungle subscale, which included four items:

1. Everything causes cancer these days.
2. If smoking was so bad for you, the government would ban tobacco sales.
3. It is dangerous to walk across the street.
4. Smoking is no more risky than lots of other things that people do.

There was a significant negative correlation between the Jungle-type beliefs subscale and self-reported change in cigarette consumption. The result indicated that after the hypnosis intervention, jungle-type beliefs increased as cigarette consumption decreased. The result is challenging to interpret since jungle-type beliefs were originally discovered amongst participants who continued smoking despite smoking-cessation

advice (Oakes et al., 2004). A positive relationship would have made more sense: jungle-type beliefs should have reduced as cigarette consumption reduced (i.e., a positive relationship).

It might have been the case that participants began interpreting the same statements differently following hypnosis or associated behavioural change. For example, "Everything causes cancer these days" might have been meaningless for some participants at the beginning of the study, but was interpreted meaningfully by the end of the study, as in 'Everything really does cause cancer, and I need to do what I can to avoid the cancers that I can avoid' or 'Walking across the street really is dangerous, and I need to protect myself from the risks I can control'.

This result suggests that smoking-related (target behaviour) beliefs do not have a role in behaviour change following hypnosis intervention. The absence of correlations between the other SEB-Q sub-scales (Skeptic, Bulletproof, Worth It) and changes in cigarette consumption suggests, as with intention, hypnosis did not act via beliefs. Combined with intention, there is an argument that hypnosis does not act via any conscious, cognitive processes. This idea would benefit from further research.

Alternatively, it could be that attitudes and beliefs do not predict behaviour. Sniehotta (2009), for example, found that changing attitudes did not change behaviour when he converted Ajzen's (1991) theory of planned behaviour into an intervention. Sniehotta developed an intervention based on Ajzen's theory, which aimed to change behaviour by changing the attitudes of participants towards that behaviour. He tested his intervention with sports facility attendance behaviour. Sniehotta was not able to increase sports facility attendance despite successfully improving attitudes toward gym class. In the present study, beliefs about smoking did not change, but behaviour did. The

result supports the arguments of Sniehotta (2009) in demonstrating that beliefs are not significantly associated with behaviour.

The limitations of previous studies were discussed above and pertain again here. Researchers have not measured target behaviour-related beliefs previously as the present study did. For example Rowland (1939) did not measure beliefs about snakes, nor did Libet (1985) measure participants' attitudes towards button-pressing. Spanos et al. (1985) did not measure the beliefs of his participants about arm-raising and head nodding before their hypnotic intervention, but they did prime participants with information about hypnosis before the intervention. The results of their study demonstrated that altering beliefs about hypnosis, not target behaviour, could influence the performance of suggestions.

The qualitative data did not provide useful insight into this research question. No participants referred to the SEB-Q scales specifically during the follow up interviews, nor were they asked about them specifically. Several participants described other 'reasons' that their cigarette consumption had not changed however. Some examples included 'everyone else was smoking' (social pressure), 'I am an idiot' (intellect), and 'I went on a holiday' (life events).

6.6 Qualitative Insights

The section above addressed the five primary research questions and hypotheses. Provided below is a discussion of the exploratory questions. For these analyses participants were grouped by result rather than intention. Participants who reported quitting or reducing their cigarette consumption by 1 or more cigarettes per day (QR) were compared with participants who did not quit or reduce their cigarette consumption (NQR). Grouping participants by result rather than intention made themes

associated with successful hypnosis more easily identifiable.

6.6.1 Beliefs about hypnosis

Did beliefs about hypnosis correlate with changes in cigarette consumption following a hypnosis intervention? Specifically, when participants were asked, "how do you think hypnosis works?" would those who achieved a significant change in their cigarette consumption describe similar or different beliefs than those who did not achieve a significant change in their cigarette consumption?

There were no specific hypotheses and no obvious, significant differences between QR and NQR participant responses. The most consistent response from both QR and NQR participants was of uncertainty. Participants demonstrated difficulty explaining their experience of hypnosis, even amongst QR participants whose behaviour had changed following hypnosis. Participants stated, "I don't know what happened there, but I know that my behaviour has changed" (Participant 46048), "hard to put into words" (Participant 46052), and "It is really like it is not… I don't know" (Participant 46009).

The difficulty participants' demonstrated explaining hypnosis supported the idea that hypnosis' effects bypass consciousness, and therefore free will and intention. Participants were unable to access or report changes in their conscious experience following hypnosis, although they were aware of changes in their behaviour.

There was evidence of trends in participant responses however. When QR participants provided an explanation of hypnosis, they tended to emphasize the role of intention. Several QR participants referred to 'readiness' and 'willingness' (i.e. the intention) to change for example, citing it as an important factor in their change. One

participant stated, “you need to want to do it” (Participant 46006) when explaining why hypnosis had worked for them.

In contrast, when NQR participants provided an explanation of hypnosis, it tended to emphasize the role of subconscious or unconscious processes and include greater detail. An example of this trend came from one participant who stated:

> …being in a hypnotic state is somewhere where your conscious mind is … quiet… so it doesn’t reason with what you are being told or being given. It just quietly sort of sits there in your unconscious without your conscious mind going ‘oh that is a load of rubbish. That doesn’t make sense’ (Participant 46075).

These trends (QR participants towards intention-oriented explanations of hypnosis and NQR participants toward subconscious-oriented explanations) were echoed by the general tendency of participants to preference one explanation or the other. Those who emphasized readiness or intention, tended not to cite subconscious/unconscious explanations of hypnosis, and vice versa. These results suggest that participants who experienced change tended to attribute the success of the intervention to themselves (i.e., intention), while participants who did not experience change tended to attribute the failure of the intervention to ‘unconscious’ factors.

Since differences between NIQ and ITQ participant cigarette consumption was not significant, the result suggests that beliefs about hypnosis were determined by the outcome of the hypnosis intervention for each client. In other words, what participants believed about hypnosis was caused by the intervention outcome rather than the cause of the outcome.

No studies were identified that collected qualitative data regarding beliefs about hypnosis and their relationship to behaviour change after hypnosis, therefore comparing these results with previous studies is not possible. The result from the

present study suggest that beliefs about hypnosis are not likely involved in the outcome of hypnosis interventions. Regarding the research of Ajzen (Ajzen, 1991; Fishbein & Ajzen, 1975), who was concerned with attitudes and beliefs, the present study suggests that these factors are not important to behaviour change. This position aligns with the work of Sniehotta, who argued that Ajzen's theories are not borne out in intervention studies (Sniehotta, 2009; Sniehotta et al., 2014).

6.6.2 Beliefs about free will

Did beliefs about free will correlate with changes in cigarette consumption following a hypnosis intervention? Specifically, did participants who achieved a significant change in their cigarette consumption report similar or different beliefs about free will and control of smoking than participants who did not achieve a significant change in their cigarette consumption, after the hypnosis intervention?

There were no specific hypotheses, and no reviewed literature discussed how beliefs in free will might influence hypnosis effectiveness specifically. There were no significant or obvious differences between QR and NQR participant responses. There were trends again, however. While there were seldom differences in the content of responses to the questions about free will and control, there were differences in the nature of the content: QR participants tended to provide simple explanations of free will but were unclear whether they had control over their smoking, while NQR participants tended to provide unclear explanations of free will but provided simple answers about whether they controlled their smoking.

When asked about whether or not they had free will, QR participants tended to provide simple responses. For example: "100%" (Participant 46031), and "I believe we control everything we do and the choices that we make" (Participant 46005). When

asked about smoking in particular though, they tended to make complicated and 'hedged' responses, for example:

> …there is free will, but I don't feel like I have got it a lot of the time … sometimes after the sessions I kind of felt like I had more choice with whether I would smoke or not. Whereas more often than not it is kind of a unconscious or sub-conscious thing where I am just lighting up a cigarette (Participant 46022).

It is important to note that only one of these participants had quit smoking altogether.

In contrast, NQR participants tended to be more philosophical about free will, stating for example: "Free will is … [a] tricky thing… there is free will and then there is free will in society. Like free will should be whatever you want to do you can do, but society limits that these days" (Participant 46044). When asked about smoking specifically, NQR participants tended to provide simple responses the way that QR participants had about free will in general. For example: "No I don't [have control over smoking]" (Participant 46063); and "I definitely don't have control over [my smoking]" (Participant 46050).

While these were only trends, it might be the case that QR participants by definition experienced change in their cigarette consumption after the hypnosis intervention, but were unsure whether that was the result of their own efforts or the effect of hypnosis. Presumably the uncertainty suggested that they believed it might have been hypnosis, since the feeling of will is typically obvious and compelling (Wegner, 2002). In contrast, NQR participants by definition had not experienced significant behaviour change following the hypnosis intervention, and therefore had no evidence or reason to doubt the belief that they controlled of their own smoking behaviour throughout.

As above, no studies were identified that collected qualitative data regarding beliefs about free will and their relationship to behaviour change after hypnosis, therefore comparing these results with previous studies is not possible. The results from the present study suggest that beliefs about free will are unlikely to play a significant role in the outcome of hypnosis interventions. This result reiterates the point made above, that the present study did not find support for the idea that reported beliefs are associated with behaviour change, as proposed by theorists such as Ajzen (Ajzen, 1991; Fishbein & Ajzen, 1975). Again, the evidence from the present study supported the opposite: that beliefs, in this instance about free will, are not important to intervention outcomes (Sniehotta, 2009; Sniehotta et al., 2014).

This result suggested that beliefs about free will were mostly unrelated to the effectiveness of hypnosis. Although the qualitative interviews were conducted after the intervention, the results provide limited evidence that beliefs about free will could influence how effective a hypnotic intervention will be.

6.6.3 Expectations regarding outcome

Did expectations about hypnosis correlate with changes in cigarette consumption following a hypnosis intervention for smoking behaviour? Specifically, would participants, who achieved a significant change in their cigarette consumption, retrospectively describe similar or different expectations about the outcome of the intervention, than participants who did not achieve a significant change in their cigarette consumption?

There were no specific hypotheses regarding this question, although it has been demonstrated that when primed, expectations can significantly influence the outcome

of behaviour during hypnosis (Spanos et al., 1985). Participants were not asked about their expectations before hypnosis in order to avoid this priming effect.

Like the abovementioned qualitative investigations, QR and NQR participants tended to provide similar responses when asked about expectations. Both groups expressed open and hopeful expectations of the hypnosis. For example one QR participant stated "I was hoping. Because I had never tried it before and I was hoping that it would work for me, but I didn't want to expect to change" (Participant 46021), while some NQR participants stated "I was skeptical but I was hoping that it would work" (Participant 46020), and "I really didn't know what was going to happen. I was quite open-minded" (Participant 46075). These types of responses were noticeably more common amongst QR participants; a finding that suggested expectations were in a way related to outcome.

As mentioned above, there is strong evidence linking expectations and hypnosis outcomes, a connection upon which some theorists have founded theories (Kirsch, 1994; Lynn et al., 1984). This result supports traditional understandings of free will since positive 'mindsets' were linked to an increased likelihood of new behaviour.

It was also noted that NQR participants were more inclined to expect complete cessation or no success at all. For example, participants stated "I thought it was going to click a tick and then it was all going to stop and that I am going to see them and think of death or something" (Participant 46010) or "I didn't expect for it to really change anything you know" (Participant 46054).

This finding reinforced the role of expectations in outcomes, and reflected the counter-productivity of rigid, black and white thinking. It might be the case that this type of rigid thinking is less compatible with behaviour change, and that hypnosis

interventions would be improved by techniques for 'opening' or 'softening' rigid, black and white expectations.

A comparison of expectations by intention revealed no obvious or significant relationships either, however. This would suggest that propensity to change behaviour in general, irrespective of intention, might be the factor that best predicts response to hypnosis.

It might be the case that there is a factor, 'propensity for change', for example, and that some people's behaviour changes more often or more easily than others. This could explain why some people experience more difficulty changing their behaviour than others, and might also be related to why some people are inclined to believe in free will and others are not. For example, if someone recorded low scores on a 'propensity to change' factor, they might be less inclined to believe in free will because they are less likely to experience changes in their behaviour associated with changes in their intentions, and vice versa: regular but random changes in behaviour, associated with regular changes in intention, could be experienced as evidence for free will. Future research might explore measuring how often someone randomly changes their behaviour, for example.

Considerable literature has already explored how to link intentions with expectations. Gollwitzer (1999) primed intentions with expectations by developing a technique that directed individuals to outline the enactment of their intentions. Implementation intentions, as they were called, are significantly more likely to be enacted than regular intentions (Armitage, 2007; Sheeran & Orbell, 1999).

Studies involving hypnosis and reported expectations would typically discuss the placebo effect (Raz, 2007). Some theorists have even proposed that the placebo effect is the basis of hypnosis' effectiveness (Kirsch, 1985). However, the present study recorded

retrospective expectations, qualitatively, and post intervention. This strategy avoided priming participants with their own expectations or the expectations of the researchers. This method made the results unlike other studies, however, and therefore made comparisons with earlier findings more difficult.

6.6.4 Experience of change

Did differences in the experience of change reveal information about the mechanisms of hypnosis? Specifically, did participants who achieved a significant change in their cigarette consumption, describe similar or different experiences of change following the hypnosis intervention, compared to participants who did not achieve a significant change in their cigarette consumption?

While there were no specific hypotheses regarding this question, it was anticipated that QR participants would experience change differently than NQR participants since, by definition, NQR participants had not experienced change. This was not the case, and some NQR participants described change following the hypnosis intervention without experiencing a reduction in their cigarette consumption.

Several themes were identified in the responses of QR participants regarding their experience of change. The first theme to emerge was effortlessness: some QR participants described their change as effortless. One participant stated "It hasn't been a struggle to quit smoking. It is not something I think about. I just go about my day now, smoke free" (Participant 46005) for example, and another stated "that whole thought process is gone [now]" (Participant 46030). Effortlessness is a commonly used to describe the experience of hypnosis (Barnier et al., 2012) and is also commonly used to support the belief that hypnosis can overcome free will, since executing one's will is often experienced as effortful (Libet, 1985, 1999).

The experience of effortlessness could suggest that free will is being counteracted, however, it might instead suggest that free will is misunderstood. For example, if free will does not exist in the conventional sense (Wegner, 2002), hypnosis could simply reduce the experience of effort by altering attention to it. If effort is considered a factor in the mechanisms of free will, there is evidence (mentioned above) that hypnosis turns attention away from effort, giving the 'illusion' that it has counter-acted free will. Although in this sense, hypnosis has not actually counter-acted free will so much as dimmed the experience of it.

In either event, there was not enough evidence available in the present study to make any conclusions on the topic, only enough to support the idea that hypnosis may affect the systems of free will. Future research might examine other types of decisions during hypnosis.

Another theme to emerge amongst QR participants was that of an initial change in their cigarette consumption followed by a gradual return to original rates of cigarette consumption. The statements of two participants best captured this during the follow up interviews, stating: "I pretty much stopped. I was only having the occasional one when I was drinking. And then something happened where I just started smoking again" (Participant 46021), and "slowly, slowly it just wore off as it got further away" (Participant 46022).

Similar patterns have been observed in previous hypnosis studies, or any intervention for that matter: behaviours tend to gradually return to pre-intervention levels. This is not unique to hypnosis. The result also suggests that the intervention might have improved with greater 'dosage' for example, and ultimately that any successful behaviour intervention may needto be sustained or ongoing. This is likely the

case with many interventions: behaviour will not change without permanent changes in the life of the client.

Regarding NQR clients, a unique case study was noted. One participant whose cigarette consumption did not reduce described a significant change following the hypnosis intervention. When asked how she felt about smoking post-intervention, she stated "I hate it … I suppose in the last two months I have thought: These cigarettes aren't doing anything different to me, so I can keep smoking" (Participant 46008). This quote represented a change in feelings towards smoking and cigarettes following hypnosis, and a new thought process to continue smoking. Neither of these, however, resulted in behaviour change.

It might be that a change in emotion immediately precedes behavioural changes following hypnosis. This idea, that hypnosis changes feelings, which in turn results in behaviour change, might benefit from further research in the future. This research could interview participants in the days following a hypnosis intervention, for example, and examine the changes in reported feelings.

As above, no studies were identified that collected qualitative data regarding the experience of change following a hypnosis intervention, therefore, comparing these results with previous studies is not possible. However the results from the present study reiterate the separation between the 'experience' of change, and actual behaviour change. There was not a uniting phenomena in the experience of change. The evidence suggested again that the relationship between mind and behaviour is not directly causal.

6.6.5 Intention-Behaviour Incongruence

Do instances of intention-behaviour incongruence reveal anything about the relationship between intention and hypnosis, or the relationship between mind and behaviour generally? Specifically, did participants who reported no intention to change but recorded changes in their smoking behaviour, report unique experiences? Conversely, did participants who reported an intention to change but did not report change in their smoking behaviour, report unique experiences? There were no specific hypotheses regarding this question, but it was anticipated that intention incongruence would result in unique phenomena following a simple, two-session hypnosis intervention.

The results for several participants demonstrated intention-behaviour incongruence, which is to say that they behaved counter to their reported intention. The reported experiences of two particular participants, who reported no intention to change but recorded change in their cigarette consumption, were examined for unique themes and phenomena. It was anticipated that some unique and unifying theme would illuminate the incongruent change in behaviour following hypnosis, however, the only theme that unified their interview data was the polarisation of their responses.

One participant described becoming more conscious of their smoking, the other less. One described ambivalent feelings about smoking, the other described it as 'gross' after hypnosis. One described strong opinions about free will, while the other described simple and vague opinions. One reported being nervous about hypnosis beforehand, and the other had 'never been more relaxed in their life'.

This thesis has explored the propensity of theorists and researchers to formulate free will in binary terms: free will either exists or it does not. It was ironic then that the

two participants who demonstrated intention incongruence were binary or polar in their presentation.

As above, no studies were identified that collected qualitative data about intention-behaviour incongruence. Therefore, directly comparing the results with other studies was not possible. However the evidence from the present study supported the idea that if hypnosis and behaviour change are linked, it is by some other, unmeasured factor, such as propensity for behaviour change, but not by any measured factor. It might be the case that the behaviour of some people changes more frequently than others, with or without intervention. If there is a factor that linked these two participants, whose behaviour changed despite their intention for it not to, it was not measured in this study. This idea would benefit from further examination.

6.7 Implications

As mentioned above, the results of the present study have important implications for explanations of free will, and hypnosis, including its theory and its practice.

The present study has resulted in several claims:

1) Hypnosis can alter the behaviour of participants who do not intend for change (i.e. Intention is not required for hypnosis efficacy).
2) Hypnosis can affect the behaviour of participants who do and do not intend to change, with statistical equivalence.
3) The more one intends to change, the more one will change.
4) Intention itself is not changed following hypnosis, and therefore hypnosis does not act via intention.

5) Beliefs that typically exempt people from changing their smoking behaviour do not predict or alter the hypnosis effect for smoking behaviour.

The qualitative data has also resulted in several claims:

6) It is unlikely that beliefs about hypnosis are important to the effectiveness of hypnosis.
7) Not what, but how someone thinks about free will, is possibly related to the effectiveness of hypnosis.
8) Expectations (even retrospectively) are important to the effectiveness of hypnosis.
9) The reported experience of change following hypnosis revealed three possible qualities of hypnosis:
    a. Behaviour change following hypnosis can be experienced as effortless,
    b. Behaviour change following hypnosis is not typically sustained and,
    c. Hypnosis can change feelings without changing behaviour.
10) Incongruent experiences suggest that an unknown, unmeasured factor was related to the effectiveness of hypnosis.

Provided below is an exploration of the implications of these claims for the practice of psychology and future studies of this topic.

6.7.1 Implications for Psychological Practices

Free will and hypnosis were both discussed in chapters 2 and 3 regarding their roles in mind-behaviour relationship generally and behavioural interventions. Provided here is an exploration of the results in regard to the practice of hypnosis specifically and psychology generally.

Hypnosis

Hypnosis was discussed above as a technique for behavioural change. The results of the present study have implications for its use. For example, in the field of psychology clients are typically advised before hypnosis that they cannot be 'made' to do anything they do not want to do since they "retain the ability to control their behaviour during hypnosis" (Lynn & Kirsch, 2004, p. 33). Practitioners may have been keen to make this claim since clients can be reluctant to try hypnosis if they believe it means 'losing control' (Ellis, 1953).

The results of the present study suggest that hypnosis may alter the behaviour of clients irrespective of their intentions. Therefore, for ethical reasons, it might be required that mental health practitioners acknowledge this with their clients before practicing hypnosis. They might be required to advise clients that behaviour change may take place, even if it is only a small change.

As such, the results of the present study support the use of hypnosis with clients who are not achieving change or are mandated to undertake treatment. This is the case amongst clients in the justice system, for example, who undergo psychological interventions as part of their parole or rehabilitation requirements.

The results from the present study also suggest that the more a client intends for change, the more change they will experience. This is also important to acknowledge with clients, since it may influence their decision to proceed with hypnosis or not. This does not however, indicate intention-oriented interventions. It is noted that the hypnosis intervention did not alter intention despite potentially altering behaviour. The results from the present study suggest that emphasis should be placed on behaviour rather than intention, since intention was not prone to change.

Practitioners might also note that self-exempting beliefs did not affect or impede the success of the hypnotic intervention. Even if a client expresses beliefs that may seem to undermine the value of intervening, some value may still be gained.

There was evidence from the present study to suggest that beliefs about hypnosis and free will are not important to the success of a hypnosis intervention, but that expectations are. This has already been demonstrated by several studies and indicates that mental health professionals should be mindful of clients' expectations.

The results of the present study also suggest that dosage might be an important issue in the implementation of hypnosis, and that hypnotic techniques might be most effectively applied with multiple sessions. This might mean discussing how long an intervention may last in advance with clients.

In regards to the ethical practice of hypnosis in a psychological setting, results from the present study also suggest that the regulation of hypnosis practice be more closely considered and possibly monitored. In addition, although the results of the present study do not resolve legal matters pertaining to hypnosis, they do suggest that hypnosis can have a partly coercive effect on behaviour. Further research is required before legislation was altered for example.

Free will and Behaviour Change

The results of the present study could also affect the practice of psychology in general. Mental health interventions might be improved by considering primary and mirrored intentions. If both client and practitioner understand and acknowledge competing intentions, if may serve to improve behavioural outcomes. This idea would benefit from further research.

6.7.2 Implications for Methodology

The present study sought to introduce and test a new design for researching hypnosis specifically and free will generally. The design involved recruiting participants who did and did not intend for a behaviour (smoking cessation), but were prepared to undergo hypnosis to change that behaviour.

This study improved on existing designs since it did not infer intention (aversive designs) nor did it instruct intention (counter-suggestion designs), and remained an ethically appropriate way of testing free will. By recruiting participants with 'autogenous/endogenous' intentions, the present study was also able to study a more 'organic' and arguably more valid form of intention.

By testing a measurable behaviour (cigarettes consumed), rather than arbitrary and unmeasurable behaviours (e.g., 'reaching' and 'raising'), the present study was also able to explore free will and behaviour in degrees rather than binary states. It is considered that this approach more accurately represented the natures of both free will and behaviour. Other studies would also benefit from adopting a design that sought participants who do not intend for something but are prepared to receive an intervention for it.

It is noted that changes in smokerlyzer scores reduced but change never reached the level of significance. This result suggested that self-reported smoking behaviour was still subject to socially desirable reporting despite the inclusion of a physiological measure of smoking (Prochaska & Di Clemente, 1983, p. 392).

6.8 Limitations and Implications for further research

While the present study made useful advances in the areas of free will and hypnosis, several design features limited the study and the broader application of its

findings. These limitations pertain mostly to sample size and construct measurement. Implications for future research are also provided below and relate to the growing importance of free will and intention in counselling psychology.

6.8.1 Limitations

Unfortunately the present study was limited by a small sample size. This was not unexpected since the population of smokers who do not want to quit are, by definition, not interested in engaging a smoking-cessation intervention. Most NIQ participants were referred to the study via either a friend or colleague. Future studies might benefit from using a referral-type recruitment program, in which people refer or recommend smokers who do not want to quit to the research program.

With a larger sample and more participants who did not intend to quit (NIQ) the study might have been able to include control groups and comparison groups with non-hypnosis interventions. This level of investigation and data might have made the results more significant or clearer.

Several limitations pertain to the topic of intention as well. For example, it is noted that participating in this study represented a level of intention, which might be argued does not truly reflect a counteraction of free will. Designing an experiment, which truly counteracts free will, might be impossible or unethical. Future research might explore naturally occurring incidences of 'unfree' or 'unintending' participants, such as those found in the legal system.

In the same vein, measuring free will as intention was also novel. Significant consideration was given to whether an existing scale should be used to measure intention or a new scale developed. Ultimately the SOCRATES was chosen, however, future studies might consider alternative measures of intention. Specifically, future

studies might consider including new items or developing a new scale for the strength of an intention. Questions about 'mirrored' intentions might also be asked. For example "to what extent do you intend to cease smoking?" and "to what extent do you intend to continue smoking?" The relationship between these example items might provide useful information for understanding intention and free will.

The present study might also have benefited from a physiological measure of neurophysiological activity such as magno-encephalography (MEG) or electro-encephalogram (EEG). In the development of the present study, a low-cost EEG device was purchased, however, participants in the pilot study found the device too uncomfortable to wear, and it was deemed that it would detract from the concentration required for hypnosis.

6.8.2 Future Research

The results of the present study challenge existing explanations of free will and hypnosis, and present several possibilities for research in the future.

In regards to hypnosis, results from this study suggest that behaviour could be altered after hypnosis without the appropriate intention. Future research might employ a similar design to the present study, but address the limitations mentioned above. For example, recruiting more participants and adding control groups could provide clearer and more conclusive results. Researchers might also expand the study by examining alternative behaviours typically considered within control, such as weight-loss. Previous theorists tended to argue that hypnosis either absolutely could counter-act free will (Levitt et al., 1975; Rowland, 1939), or absolutely could not (Kirsch & Lynn, 1997, 1999). Future research might consider a compromise position somewhere between these poles.

If the research is replicated, future researchers might also consider how free will and intention are measured. The present study employed the Stages Of Change Readiness and Treatment Eagerness Scale (SOCRATES), and researchers might consider alternative measures or develop their own. The development of an intention or free will inventory/tool might also represent useful research. Such research could help clarify the relationship between intention and free will, and might serve to distinguish these from other, similar phenomena, such as motivation or willpower.

The idea of mirrored intentions emerged from the present study. This idea would also benefit from further research. It could be researched in another behavioural intention by simply asking participants about the reasons that they do not intend to change, for example. It might also be usefully considered in mood disorder treatment. Research participants experiencing anxiety or depression might be asked to consider the reasons that they do not change, or what purpose depression is serving for them. Recognizing the function of depression or anxiety might help clients to discover new ways of achieving their goals and empowering them.

The idea of an unmeasured factor relating to propensity for behaviour change also emerged from this study. Researchers could assess how frequently behaviour changes, whatever that behaviour might be, such as. gym attendance, work attendance, or diet-related behaviour. Journal data might reveal how often new behaviours emerge and how long they typically last. Data of this nature could reveal different behavioural 'types', or people whose behaviour changes regularly compared with people whose behaviour infrequently changes.

Participant insight into free behaviour might also become an important area of research. Participants in the present research were not able to provide a clear understanding of what had happened to them or why their behaviour was changing.

Participants demonstrated very little conscious access to the processes of change. A study that correlated degree of insight with degree of change might also help to clarify the relationship between consciousness and behaviour.

The present study examined the role of mind in behaviour, but future studies might extend the work of Wegner (Wegner, 1989, 2002) and explore how the mind governs itself, including unconscious activity. In the present study participants were asked to describe their experience of hypnosis and the subsequent changes in their behaviour. Typically participants were unable to discuss any cognitive correlates of their behaviour change, because they did not report any consciousness experience of a change. There are several lines of research that have examined this in the past, but future research might follow hypnosis more closely, interviewing participants before, during, and immediately after hypnosis to examine the conscious experience of hypnosis. Could there be techniques that make hypnosis more consciously accessible? Future research might also consider other behaviour changes and decisions, like weight-loss, for example. As discussed above, such a study might interview participants in the hours and days after hypnosis, rather than weeks and months later.

6.9 Conclusion

This thesis has investigated the relationship between mind and behaviour, including the themes of free will, intention, consciousness, and behaviour change. Chapter 1 provided an overview of the entire thesis, introducing the themes of the relationship and outlining the research problem. Chapter 2 examined research that challenges the convention that free will controls both action (Libet, 1985; Libet et al., 1983) and consciousness (Wegner, 1989, 2002). It also explored the work of researchers who argued for the preservation of free will in intention (Pacherie &

Haggard, 2010), as well as a theory of behaviour built around intention (Ajzen, 1985, 1991). Finally, it explored research of self-initiated behaviour change, in the development of a theory about all behaviour change, including therapy-assisted change (Di Clemente & Prochaska, 1982; Prochaska & Di Clemente, 1982). Chapter 3 explored these ideas specifically in the context of hypnosis, most particularly the ideas of consciousness and free will. Research regarding the role of free will in hypnosis was examined in the greatest detail, and revealed primarily two, broad experimental designs: aversive studies (Rowland, 1939), and counter-suggestion studies (Hilgard, 1963; Levitt et al., 1990; Spanos et al., 1985). The results of these studies were mixed and involved several design inadequacies. Aversive designs were unethical, and counter-suggestion designs instructed behaviour, rather than allowing it to be freely self-selected. Chapter 4 outlined a new research design and procedure that could address these shortcomings, which was ultimately used in the present study. Chapter 5 outlined the quantitative and qualitative results of the study. The present chapter tested the findings in chapter 5 against the literature reviewed in chapters 2 and 3, as well as the hypotheses presented in chapter 4.

The present study has resulted in several major claims, including evidence for the argument that hypnosis can alter the behaviour without intention for change, but that the more one intends to change, the more change that will occur.

References

Aarts, H., & van den Bos, K. (2011). On the foundations of beliefs in free will: intentional binding and unconscious priming in self-agency. *Psychol Sci, 22*(4), 532-537. doi:10.1177/0956797611399294

Abramowitz, E. G., Barak, Y., Ben-Avi, I., & Knobler, H. Y. (2008). Hypnotherapy in the treatment of chronic combat-related PTSD patients suffering from insomnia: A randomized, zolpidem-controlled clinical trial. *International Journal of Clinical and Experimental Hypnosis, 56*(3), 270-280.

Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhl & J. Beckman (Eds.), *Action-control: From cognition to behaviour* (pp. 11 - 39). Heidelberg, Germany: Springer.

Ajzen, I. (1991). The Theory of Planned Behaviour. *Organizational Behaviour and Human Decision Processes, 50*, 33.

Ajzen, I. (2011). The theory of planned behaviour: reactions and reflections. *Psychol Health, 26*(9), 1113-1127. doi:10.1080/08870446.2011.613995

Ajzen, I. (2015). The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotta, Presseau, and Araujo-Soares. *Health Psychol Rev, 9*(2), 131-137. doi:10.1080/17437199.2014.883474

Alladin, A. (2014). The Wounded Self - New Approach to Understanding and Treating Anxiety Disorders. *American Journal of Clinical Hypnosis, 56*(4), 22. doi:10.1080/00029157.2014.880045

Armitage, C. J. (2007). Efficacy of a brief worksite intervention to reduce smoking: the roles of behavioral and implementation intentions. *J Occup Health Psychol, 12*(4), 376-390. doi:10.1037/1076-8998.12.4.376

Aveyard, P., Massey, L., Parsons, A., Manaseki, S., & Griffin, C. (2009). The effect of Transtheoretical Model based interventions on smoking cessation. *Soc Sci Med, 68*(3), 397-403. doi:10.1016/j.socscimed.2008.10.036

Baghdadi, G., & Nasrabadi, A. M. (2009). An investigation of changes in brain wave energy during hypnosis with respect to normal EEQ. *Sleep and Hypnosis, 11*(2), 5.

Baker, E. L., & Levitt, E. E. (1989). The hypnotic relationship: an investigation of compliance and resistance. *International Journal of Clinical and Experimental Hypnosis, 37*(2), 145-153. doi:10.1080/00207148908410543

Barabasz, A. F., & Barabasz, M. (2015). The New APA Definition of Hypnosis: Spontaneous Hypnosis MIA. *Am J Clin Hypn, 57*(4), 459-463. doi:10.1080/00029157.2015.1011507

Barber, J. (2001). Freedom from smoking: Integrating hypnotic methods and rapid smoking to facilitate smoking cessation. *International Journal of Clinical and Experimental Hypnosis, 49*(3), 257-266.

Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of Social Behaviour: Direct Effects of Trait Construct and Stereotype Activation on Action. *Journal of Personality and Social Psychology, 71*(2), 15.

Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The Automated Will: Nonconscious Activation and Pursuit of Behavioural Goals. *Journal of Personality and Social Psychology, 81*(6), 14.

Barnier, A. J., Dienes, Z., & Mitchell, C. J. (2012). How hypnosis happens: new cognitive theories of hypnotic responding. In A. J. Barnier & M. R. Nash (Eds.), *The Oxford Handbook of Hypnosis: Theory, Research, and Practice*: Oxford University Press.
Barnier, A. J., McConkey, K. M., & Sheehan, P. W. (2010). Hypnotically influenced memory and the legal system. In I. Freckleton & H. Selby (Eds.), *Expert Evidence* (pp. 130): Law Book Company.
Barrett, D. (2015). Hypnosis: statehood at last. *Am J Clin Hypn, 57*(4), 456-458. doi:10.1080/00029157.2015.1011502
Benedetti, F., Carlino, E., & Pollo, A. (2011). How placebos change the patient's brain. *Neuropsychopharmacology, 36*(1), 339-354. doi:10.1038/npp.2010.81
Borland, R. (2011). [Hypnotic Smoking Cessation].
Bowers, K. S. (1992). Imagination and dissociation in hypnotic responding. *The International journal of clinical and experimental hypnosis, 40*(4), 253-275. doi:10.1080/00207149208409661
Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology, 3*, 26.
Burrows, G. D., Dennerstein, L., & Frenader, G. (1983). A note on hypnosis and the law. *Australian Journal of Clinical & Experimental Hypnosis, 11*(2), 83-88.
Cahill, K., Lancaster, T., & Green, N. (2010). Stage-based interventions for smoking cessation. *Cochrane Database of Systematic Reviews*(11).
Cangas Diaz, A. J., Luciano, C., Perez Alvarez, M., Ruiz-Sanchez, L. J., & Eisenbeck, N. (2015). Disruption of Hypnotic Behaviour. *International Journal of Psychology and Psychological Therapy, 15*(1), 14.
Carmody, T. P., Duncan, C., Simon, J. A., Solkowitz, S., Huggins, J., Lee, S., & Delucchi, K. (2008). Hypnosis for smoking cessation: A randomized trial. *Nicotine & Tobacco Research, 10*(5), 811-818.
Casmar, P. V. (2002). Hypnosis and smoking cessation. *ProQuest Dissertations and Theses*.
Chalmers, D. J. (1996). Facing Up to the Problem of Consciousness. In S. R. Hameroff, A. W. Kasniak, & A. C. Scott (Eds.), *Toward a Science of Consciousness: The First Tucson Discussions and Debates*. United State of America: MIT Press.
Chong Tong, M. (1966). The use of hypnosis as an adjunct in surgery. *Am J Clin Hypn, 8*(3), 178-180. doi:10.1080/00029157.1966.10402487
Coe, W. C. (1990). "Some conditions of compliance and resistance among hypnotic subjects": Comment: Are the conclusions valid? *American Journal of Clinical Hypnosis, 32*(4), 237-239.
Collaery, B. (1999). *Law, Ethics, Hypnosis.* Paper presented at the Professional Certificate in Clinical Hypnosis Workshop, Canberra, Australian Capital Territory.
Dell, P. F. (2010). Involuntariness in hypnotic responding and dissociative symptoms. *Journal of Trauma & Dissociation, 11*(1), 1-18.
Derbyshire, S. W., Whalley, M. G., & Oakley, D. A. (2009). Fibromyalgia pain and its modulation by hypnotic and non-hypnotic suggestion: an fMRI analysis. *European journal of pain, 13*(5), 542-550. doi:10.1016/j.ejpain.2008.06.010
Deveci, S. E., Deveci, F., Açik, Y., & Ozan, A. T. (2004). The measurement of exhaled carbon monoxide in healthy smokers and non-smokers. *Respiratory Medicine, 98*(6), 551-556. doi:10.1016/j.rmed.2003.11.018
Di Clemente, C., & Prochaska, J. O. (1982). Self-Change and Therapy Change of Smoking Behaviour: A comparison of processes of change in cessation and maintenance. *Addictive Behaviours, 7*, 10.

Di Clemente, C., Prochaska, J. O., Fairhust, S., Velicer, W. F., Velasquez, M., & Rossi, J. S. (1991). The Process of Smoking Cessation: an analysis of precontemplation, contemplation, and preparation stages of change. *J Consult Clin Psychol, 59*(2), 10.

Dong, B. J., McRobbie, H., Walker, N., Mehta, M., & Stead, L. F. (2010). Hypnotherapy for smoking cessation (Review). *Cochrane Database of Systematic Reviews,* (10). Retrieved from doi:10.1002/14651858.CD001008.pub2

Douglas, D. (1999). Stopping smoking: A study on the nature of resistance and the use of hypnosis. *Seidman, Daniel F [Ed]*, 213-223.

DuBreuil, S. C., & Spanos, N. P. (1993). Psychological treatment of warts. *Rhue, Judith W [Ed]*, 623-648.

Elkins, G. R., Barabasz, A. F., Council, J. R., & Spiegel, D. (2015). Advancing research and practice: the revised APA Division 30 definition of hypnosis. *The International journal of clinical and experimental hypnosis, 63*(1), 1-9. doi:10.1080/00207144.2014.961870

Ellis, A. (1953). Reactions of psychotherapy patients who resist hypnosis. *Journal of Clinical & Experimental Hypnosis, 1*(3), 12-15.

Filevich, E., Kuhn, S., & Haggard, P. (2013). There is No Free Won't: Antecedent Brain Activity Predicts Decisions to Inhibit. *PLoS ONE, 8*(2), 11. doi:10.1371/

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior An Introduction to Theory and Research.* Retrieved from http://people.umass.edu/aizen/f&a1975.html

free will. (2016). Retrieved from http://www.merriam-webster.com/dictionary/free+will

Frischholz, E. J. (2014). Hypnosis, Hypnotizability, and Placebo. *American Journal of Clinical Hypnosis, 57*(1), 11. doi:10.1080/00029157.2015.967088

10.1080/00029157.2007.10401597

Gearan, P., Schoenberger, N. E., & Kirsch, I. (1995). Modifying hypnotizability: a new component analysis. *The International journal of clinical and experimental hypnosis, 43*(1), 70-89. doi:10.1080/00207149508409376

Gollwitzer, P. M. (1999). Implementation Intentions. *American Psychologist, 54*(7), 11.

Gomes, G. (2010). Preparing to move and deciding not to move. *Consciousness and cognition, 19*(1), 457-459. doi:10.1016/j.concog.2009.10.008

Green, J. P., Barabasz, A. F., Barrett, D., & Montgomery, G. H. (2005). Forging ahead: the 2003 APA Division 30 definition of hypnosis. *The International journal of clinical and experimental hypnosis, 53*(3), 259-264. doi:10.1080/00207140590961321

Green, J. P., & Lynn, S. J. (2000). Hypnosis and suggestion-based approaches to smoking cessation: An examination of the evidence. *International Journal of Clinical and Experimental Hypnosis, 48*(2), 195-224.

Haggard, P., Cartledge, P., Dafydd, M., & Oakley, D. A. (2004). Anomalous control: when 'free-will' is not conscious. *Consciousness and cognition, 13*(3), 646-654. doi:10.1016/j.concog.2004.06.001

Haggard, P., & Libet, B. (2001). Conscious Intention and Brain Activity. *Journal of Consciousness Studies, 8*(11), 17.

Hawkins, R. (1993). An analysis of hypnotherapist-client sexual intimacy. *The International journal of clinical and experimental hypnosis, 41*(4), 272-286. doi:10.1080/00207149308414558

Hilgard, E. R. (1963). Ability to resist suggestions within the hypnotic state: Responsiveness to conflicting communications. *Psychological Reports, 12*(1), 3-13.

Hilgard, E. R. (1969). Pain as a Puzzle for Psychology and Physiology. *American Psychologist, 24*, 11.
Hilgard, E. R. (1977). The Problem of Divided Consciousness: A Neodissociation Interpretation. *The New York Academy of Sciences, 296*, 13.
Hilgard, E. R. (1992). Divided consciousness and dissociation. *Consciousness and Cognition: An International Journal, 1*(1), 16-31.
Hilgard, E. R., Cooper, L. M., Lenox, J., Morgan, A. H., & Voevodsky, J. (1967). The use of pain-state reports in the study of hypnotic analgesia to the pain of ice water. *Journal of Nervous and Mental Disease, 144*(6), 8.
Hohwy, J. (2009). The neural correlates of consciousness: new experimental approaches needed? *Consciousness and cognition, 18*(2), 428-438. doi:10.1016/j.concog.2009.02.006
Hunt, S. M. (1979). Hypnosis as obedience behaviour. *British Journal of Social & Clinical Psychology, 18*(1), 21-27.
Iglesias, A. (2003). Hypnosis as a Vehicle for Choice and Self-Agency in the Treatment of Children with Trichotillomania. *American Journal of Clinical Hypnosis, 46*(2), 129-137.
Jaynes, J. (1990). *The Origin Of Consciousness In The Break Down Of The Bicameral Mind* New York: Mariner Books.
Jensen, M. P., & Patterson, D. R. (2014). Hypnotic approaches for chronic pain management: clinical implications of recent research findings. *Am Psychol, 69*(2), 167-177. doi:10.1037/a0035644
Johnson, R. F., & Barber, T. X. (1978). Hypnosis, suggestions, and warts: An experimental investigation implicating the importance of "believed-in efficacy.". *American Journal of Clinical Hypnosis, 20*(3), 165-174.
Judd, F. K., Burrows, G. D., & Bartholemew, A. A. (1986). A case of the law and hypnotic coercion and compliance. *Australian Journal of Clinical & Experimental Hypnosis, 14*(2), 115-123.
Kihlstrom, J. F. (2005). Is Hypnosis and Altered State of Consciousness or What? *Contemporary Hypnosis, 22*(1), 5.
Kihlstrom, J. F. (2013). Neuro-hypnotism: prospects for hypnosis and neuroscience. *Cortex, 49*(2), 365-374. doi:10.1016/j.cortex.2012.05.016
Kinnunen, T., Zamansky, H. S., & Block, M. L. (1994). Is the Hypnotized Subject Lying? *Journal of Abnormal Psychology, 103*(2), 8.
Kinnunen, T., Zamansky, H. S., & Nordstrom, B. L. (2001). Is the hypnotized subject complying. *International Journal of Clinical and Experimental Hypnosis, 49*(2), 12. doi:10.1080/00207140108410060
Kirsch, I. (1985). Response Expectancy as a Determinant of Experience and Behaviour. *American Psychologist, 40*(11), 14.
Kirsch, I. (1994). Clinical hypnosis as a nondeceptive placebo: Empirically derived techniques. *American Journal of Clinical Hypnosis, 37*(2), 95-106.
Kirsch, I. (2001). The response set theory of hypnosis: expectancy and physiology. *Am J Clin Hypn, 44*(1), 69-73. doi:10.1080/00029157.2001.10403458
Kirsch, I. (2005). The Flexible Observe An Neodissociation Theory. *Contemporary Hypnosis, 22*(3), 2.
Kirsch, I. (2011). The altered state issue: dead or alive? *The International journal of clinical and experimental hypnosis, 59*(3), 350-362. doi:10.1080/00207144.2011.570681

Kirsch, I., & Low, C. B. (2013). Suggestion in the Treatment of Depression. *American Journal of Clinical Hypnosis, 55*, 9. doi:10.1080/00029157.2012.738613
Kirsch, I., & Lynn, S. J. (1997). Hypnotic involuntariness and the automaticity of everyday life. *American Journal of Clinical Hypnosis, 40*(1), 329-348.
Kirsch, I., & Lynn, S. J. (1999). Automaticity in clinical psychology. *American Psychologist, 54*(7), 504-515.
Kline, M. V. (1958). The Dynamics of Hypnotically Induced Antisocial Behaviour. *The Journal of Psychology, 45*(2), 7. doi:10.1080/00223980.1958.9916253
Kline, M. V. (1972). The production of antisocial behavior through hypnosis: new clinical data. *The International journal of clinical and experimental hypnosis, 20*(2), 80-94. doi:10.1080/00207147208409279
Koch, C. (2004). *The Quest fo Consciousness*. Colorado: Roberts & Company Publishers.
Koep, L. (2012). Investigation of the Relationship between Hypnotizability, Psychological Mindedness, Attitudes toward Hypnosis and Expectancy.
Kwan, P. S. K. (2009). Phase-oriented hypnotherapy for complex PTSD in battered women: An overview and case studies from Hong Kong. *Australian Journal of Clinical & Experimental Hypnosis, 37*(1), 49-59.
Landolt, A. S., & Milling, L. S. (2011). The efficacy of hypnosis as an intervention for labor and delivery pain: a comprehensive methodological review. *Clinical psychology review, 31*(6), 1022-1031. doi:10.1016/j.cpr.2011.06.002
Landry, M., & Raz, A. (2015). Hypnosis and imaging of the living human brain. *Am J Clin Hypn, 57*(3), 285-313. doi:10.1080/00029157.2014.978496
Lankton, S. (2013). Special Issue on Placebo, Hypnosis, and Antidepressants. *American Journal of Clinical Hypnosis, 55*(3), 2. doi:10.1080/00029157.2013.741024
Lapostolle, F., Gourlain, H., Pizagalli, M. N., Le Toumelin, P., Adnet, F., Galliot, M., . . . Borron, S. W. (2005). Measurement of carbon monoxide in simulated expired breath. *Resuscitation, 64*(2), 201-204.
Laurence, J. R., & Perry, C. (1988). *Hypnosis, will, and memory: A psycho-legal history*.
Levitt, E. E., Aronoff, G., Duane, C., Toner, M., Overley, M., & Parrish, M. J. (1975). Testing the coercive power of hypnosis: committing objectionable acts. *The International journal of clinical and experimental hypnosis, 23*(1), 59-67. doi:10.1080/00207147508416173
Levitt, E. E., Baker, E. A., & Fish, R. C. (1990). Some conditions of compliance and resistance among hypnotic subjects. *American Journal of Clinical Hypnosis, 32*(4), 225-236.
Levitt, E. E., & Baker, E. L. (1983). The hypnotic relationship: Another look at coercion, compliance and resistance: a brief communication. *International Journal of Clinical and Experimental Hypnosis, 31*(3), 125-131. doi:10.1080/00207148308406603
Libet, B. (1965a). Brain Stimulation and the Threshold of Conscious Experience. In J. C. Eccles (Ed.), *Brain and Conscious Experience: Study Week September 28 to October 4, 1964, of the Pontificia Academia Scientiarum* (pp. 165-181). Berlin, Heidelberg: Springer Berlin Heidelberg.
Libet, B. (1965b). Cortical Activation in Conscious and Unconscious Experience. *Perspectives in Biology and Medicine, 9*(1), 77-86. doi:10.1353/pbm.1965.0023
Libet, B. (1985). Unconscious cerebral initiative and the role of conscious will in voluntary action. *Behavioral and Brain Sciences, 8*(4), 529-566.
Libet, B. (1999). Do We Have Free Will? *Journal of Consciousness Studies, 6*(8-9), 11.

Libet, B. (2003). Can conscious experience affect brain activity? *Journal of Consciousness Studies, 10*(12), 5.
Libet, B., Alberts, W. W., Wright Jr., E. W., Delattre, L. D., Levin, G., & Feinstein, B. (1964). Production of Threshold Levels of Conscious Sensation by Electrical Stimulation of Human Somatosensory Cortex. *Journal of Neurophysiolog, 27*(4), 33.
Libet, B., Gleason, C. A., Wright Jr., E. W., & Pearl, D. K. (1983). Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness Potential). *Brain, 106*, 20.
Libet, B., Wright Jr., E. W., Feinstein, B., & Pearl, D. K. (1979). Subjective Referral of the Timing for a Conscious Sensory Experience. *Brain, 102*, 23.
Libet, B., Wright Jr., E. W., & Gleason, C. A. (1982). Readiness-Potentials Preceding Unrestricted Spontaneous Vs. Pre-Planned Voluntary Acts. *Electroencephalography and Clinical Neurophysiology, 54*, 14.
Lynn, S. J. (1990). "Some conditions of compliance and resistance among hypnotic subjects": Comment: Is hypnotic influence coercive? *American Journal of Clinical Hypnosis, 32*(4), 239-241.
Lynn, S. J., Green, J. P., Kirsch, I., Capafons, A., Lilienfeld, S. O., Laurence, J. R., & Montgomery, G. H. (2015). Grounding Hypnosis in Science: The "New" APA Division 30 Definition of Hypnosis as a Step Backward. *Am J Clin Hypn, 57*(4), 390-401. doi:10.1080/00029157.2015.1011472
Lynn, S. J., & Kirsch, I. (2004). The Basics of Clinical Hypnosis. In S. J. Lynn, I. Kirsch, & J. W. Rhue (Eds.), *Essentials of Clinical Hypnosis* (pp. 22).
Lynn, S. J., Nash, M. R., Rhue, J. W., Frauman, D., & Stanley, S. (1983). Hypnosis and the experience of nonvolition. *The International journal of clinical and experimental hypnosis, 31*(4), 293-308. doi:10.1080/00207148308406624
Lynn, S. J., Nash, M. R., Rhue, J. W., Frauman, D. C., & Sweeney, C. A. (1984). Nonvolition, expectancies, and hypnotic rapport. *Journal of Abnormal Psychology, 93*(3), 295-303.
Lynn, S. J., Rhue, J. W., & Kirsch, I. (2010). Handbook of clinical hypnosis (2nd ed.). *806*.
Mason, A. (1994). A psychoanalyst looks at a hypnotist: A study of folie a deux. *The Psychoanalytic Quarterly, 63*(4), 641-679.
McCall, W., D'Agostino, R., Jr., Rosenquist, P. B., Kimball, J., Boggs, N., Lasater, B., & Blocker, J. (2011). Dissection of the factors driving the placebo effect in hypnotic treatment of depressed insomniacs. *Sleep Medicine, 12*(6), 557-564.
McGeown, W. J., Venneri, A., Kirsch, I., Nocetti, L., Roberts, K., Foan, L., & Mazzoni, G. (2012). Suggested visual hallucination without hypnosis enhances activity in visual areas of the brain. *Consciousness and cognition, 21*(1), 100-116. doi:10.1016/j.concog.2011.10.015
Mendoza, M., & Capafons, A. (2009). Efficacy of Clinical Hypnosis: A Summary of its Empirical Evidence. *Papeles del Psicólogo, 30*(2), 19.
Milgram, S. (1963). Behavioural Study of Obedience. *Journal of Abnormal and Social Psychology, 67*(4), 8.
Milgram, S. (1974). *Obedience to Authority: An Experimental View*. London: Tavistock.
Miller, J., Vieweg, P., Kruize, N., & McLea, B. (2010). Subjective reports of stimulus, response, and decision times in speeded tasks: how accurate are decision time reports? *Consciousness and cognition, 19*(4), 1013-1036. doi:10.1016/j.concog.2010.06.001
Noble, J., & McConkey, K. M. (1995). Hypnotic Sex Change: Creating and Challening a Delusion in the Laboratory. *Journal of Abnormal Psychology, 104*(1), 5.

O'Brien, R. M., & Rabuck, S. J. (1976). Experimentally produced self-repugnant behavior as a function of hypnosis and waking suggestion: A pilot study. *American Journal of Clinical Hypnosis, 18*(4), 272-276.
Oakes, W., Chapman, S., Borland, R., Balmford, J., & Trotter, L. (2004). "Bulletproof skeptics in life's jungle": which self-exempting beliefs about smoking most predict lack of progression towards quitting? *Preventive medicine, 39*(4), 776-782. doi:10.1016/j.ypmed.2004.03.001
Oakley, D. A. (2012). Hypnosis, trance and suggestion: evidence from neuroimaging. In A. J. Barnier & M. R. Nash (Eds.), *The Oxford Handbook of Hypnosis: Theory, Research, and Practice*.
Oakley, D. A., Deeley, Q., & Halligan, P. W. (2007). Hypnotic depth and response to suggestion under standardized conditions and during FMRI scanning. *The International journal of clinical and experimental hypnosis, 55*(1), 32-58. doi:10.1080/00207140600995844
Oakley, D. A., & Halligan, P. W. (2013). Hypnotic suggestion: opportunities for cognitive neuroscience. *Nat Rev Neurosci, 14*(8), 565-576. doi:10.1038/nrn3538
Orne, M. T. (1959/2006). The nature of hypnosis. artifact and essence: An experimental study. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 67*(2-B), 1207.
Orne, M. T. (1966). *Hypnosis, Motivation, and Compliance.* Paper presented at the 121st Annual Meeting of the American Psychiatric Association, New York.
Orne, M. T. (1971). The simulation of hypnosis: why, how, and what it means. *The International journal of clinical and experimental hypnosis, 19*(4), 183-210. doi:10.1080/00207147108407167
Orne, M. T. (1972). Can a Hypnotized Subject be Compelled to Carry out Otherwise Unacceptable Behaviour. *The International journal of clinical and experimental hypnosis, 20*(2), 13.
Orne, M. T., & Evans, F. J. (1965). Social control in the psychological experiment: Antisocial behavior and hypnosis. *Journal of Personality and Social Psychology, 1*(3), 189-200.
Pacherie, E. (2000). The Content of Intentions. *Mind & Language, 15*(4), 33.
Pacherie, E. (2006). Towards a Dynamic Theory of Intentions. In S. Pockett, W. P. Banks, & S. Gallagher (Eds.), *Does Consciousness Cause Behaviour? An Investigation of the Nature of Volition* (pp. 145 - 167). Cambridge: MIT Press.
Pacherie, E. (2013). Can conscious intention be saved? *Topoi, 33*, 16.
Pacherie, E., & Haggard, P. (2010). What are intentions? In L. Nadel & W. Sinnot-Armstrong (Eds.), *Conscious Will and Responsibility: A tribute to Benjamin Libet* (pp. 70-84): Oxford University Press.
Patrick, D. L., Cheadle, A. C., Thompson, D. C., Diehr, P., Koepsell, T., & Kinne, S. (1994). The Validity of Self-Reported Smoking: A Review and Meta-Analysis. *American Journal of Public Health, 84*(7), 8.
Patton, M. Q. (2002). Two Decades of Developments in Qualitative Inquiry. *Qualitative Social Work, 1*(3), 23.
Perry, C. (1979). Hypnotic coercion and compliance to it: a review of evidence presented in a legal case. *The International journal of clinical and experimental hypnosis, 27*(3), 187-218. doi:10.1080/00207147908407562
Perry, C. (1990). "Some conditions of compliance and resistance among hypnotic subjects": Comment: Coercion by hypnosis? *American Journal of Clinical Hypnosis, 32*(4), 242-243.

Pockett, S. (2004). Hypnosis and the death of "subjective backwards referral". *Consciousness and cognition, 13*(3), 621-625. doi:10.1016/j.concog.2004.06.005
Pockett, S. (2012). The Electromagnetic Field Theory of Consciousness. *Journal of Consciousness Studies, 19*(11-12), 33.
Pockett, S., Banks, W. P., & Gallagher, S. (Eds.). (2009). *Does Consciousness Cause Behaviour?* Cambridge, Massachusetts: The MIT Press.
Presseau, J., Tait, R. I., Johnston, D. W., Francis, J. J., & Sniehotta, F. F. (2013). Goal conflict and goal facilitation as predictors of daily accelerometer-assessed physical activity. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association, 32*(12), 1179-1187. doi:10.1037/a0029430
Prochaska, J. O. (1979a). Systems of psychotherapy: A transtheoretical analysis. *407*.
Prochaska, J. O. (1979b). *Systems of psychotherapy: A transtheoretical analysis*. Illinois, United States of America: Dorsey Press.
Prochaska, J. O., & Di Clemente, C. (1982). Transtheoretical Therapy: Towards a More Integrative Model of Change. *Psychotherapy: Theory, Research & Practice, 19*(3), 13.
Prochaska, J. O., & Di Clemente, C. (1983). Stages and Processes of Self-Change of Smoking: Toward an Integrative Model of Change. *J Consult Clin Psychol, 51*(3), 6.
Prochaska, J. O., Di Clemente, C., & Norcross, J. C. (1992). In search of How People Change: Applications to Addictive Behaviours. *American Psychologist, 47*(9), 13.
Pyun, Y. D. (2013). The effective use of hypnosis in schizophrenia: structure and strategy. *The International journal of clinical and experimental hypnosis, 61*(4), 388-400. doi:10.1080/00207144.2013.815059
Rainville, P., Hofbauer, R. K., Bushnell, M., Duncan, G. H., & Price, D. D. (1999). Cerebral Mechanisms of hypnosis induction and suggestion. *Journal of Cognitive Neuroscience, 11*(1), 116.
Ramo, D. E., Hall, S. M., & Prochaska, J. O. (2011). Reliability and validity of self-reported smoking in an anonymous online survey with young adults. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association, 30*(6), 693-701. doi:10.1037/a0023443
Raz, A. (2007). Hypnobo: Perspectives on Hypnosis and Placebo. *American Journal of Clinical Hypnosis, 50*(1), 8.
Rowland, L. (1939). Will hypnotized persons try to harm themselves or others? *The Journal of Abnormal and Social Psychology, 34*(1), 114-117.
Sandberg, K., Timmermans, B., Overgaard, M., & Cleeremans, A. (2010). Measuring consciousness: is one measure better than the other? *Consciousness and cognition, 19*(4), 1069-1078. doi:10.1016/j.concog.2009.12.013
Sarbin, T. R. (1943). The Concept of Role-Taking. *Sociometry, 6*(3), 13.
Schurger, A., Sitt, J. D., & Dehaene, S. (2012). An accumulator model for spontaneous neural activity prior to self-initiated movement. *Proceedings of the National Academy Sciences of the United States of America*. Retrieved from http://www.pnas.org/cgi/doi/10.1073/pnas.1210467109 website: http://www.pnas.org/cgi/doi/10.1073/pnas.1210467109
Searle, J. (1999). *Mind, Language, and Society*. London: Weidenfield & Nicolson.
Sheeran, P., & Orbell, S. (1999). Implementation intentions and repeated behaviours. *European Journal of Social Psychology, 29*, 22.
Sniehotta, F. (2009). An Experimental Test of the Theory of Planned Behavior. *Applied Psychology: Health and Well-Being, 1*(2), 257-270. doi:10.1111/j.1758-0854.2009.01013.x

Sniehotta, F., Presseau, J., & Araujo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychol Rev, 8*(1), 1-7. doi:10.1080/17437199.2013.869710
Society, A. P. (2007). *APS Code of Ethics*. Flinders Lane, Victoria: Australian Psychological Society.
Soon, C. S., Brass, M., Heinze, H. J., & Haynes, J. D. (2008a). Unconscious determinants of free decisions in the human brain. *Nature neuroscience, 11*(5), 543-545. doi:10.1038/nn.2112
Soon, C. S., Brass, M., Heinze, H. J., & Haynes, J. D. (2008b). Unconscious determinants of free decisions in the human brain. *Nature neuroscience, 11*(5), 543-545. doi:10.1038/nn.2112
Soon, C. S., He, A. H., Bode, S., & Haynes, J. D. (2013). Predicting free choices for abstract intentions. *Proc Natl Acad Sci U S A, 110*(15), 6217-6222. doi:10.1073/pnas.1212218110
Spanos, N. P., Cobb, P. C., & Gorassini, D. R. (1985). Failing to resist hypnotic test suggestions: A strategy for self-presenting as deeply hypnotized. *Psychiatry: Journal for the Study of Interpersonal Processes, 48*(3), 282-292.
Spanos, N. P., & Hewitt, E. C. (1980). The Hidden Observer in Hypnotic Analgesia: Discovery or Experimental Creation? *Journal of Personality and Social Psychology, 39*(6), 14.
Spanos, N. P., Liddy, S. J., Scott, H., Garrard, C., Sine, J., Tirabasso, A., & Hayward, A. (1993). Hypnotic suggestion and placebo for the treatment of chronic headache in a university volunteer sample. *Cognitive Therapy and Research, 17*(2), 191-205.
Spanos, N. P., Radtke, H. L., & Betrand, L. D. (1984). Hypnotic Amnesia as a Strategic Enactment: Breaching amnesia in highly susceptible subjects. *Journal of Personality and Social Psychology, 46*(5), 15.
Spanos, N. P., Weekes, J. R., & de Groh, M. (1984). The "involuntary" countering of suggested requests: A test of the ideomotor hypothesis of hypnotic responsiveness. *British Journal of Experimental & Clinical Hypnosis, 1*(3), 3-11.
Spiegel, D. (1990). "Some conditions of compliance and resistance among hypnotic subjects": Comment: Theoretical and empirical resistance to hypnotic compliance. *American Journal of Clinical Hypnosis, 32*(4), 243-245.
Spiegel, D. (2013). Tranceformations: hypnosis in brain and body. *Depress Anxiety, 30*(4), 342-352. doi:10.1002/da.22046
Spiegel, H., & Greenleaf, M. (2006). Commentary: Defining Hypnosis. *American Journal of Clinical Hypnosis, 48*(2-3), 5.
Stewart-Williams, S., & Podd, J. (2004). The placebo effect: dissolving the expectancy versus conditioning debate. *Psychological bulletin, 130*(2), 324-340. doi:10.1037/0033-2909.130.2.324
Tefikow, S., Barth, J., Maichrowitz, S., Beelmann, A., Strauss, B., & Rosendahl, J. (2013). Efficacy of hypnosis in adults undergoing surgery or medical procedures: a meta-analysis of randomized controlled trials. *Clinical psychology review, 33*(5), 623-636. doi:10.1016/j.cpr.2013.03.005
Trevena, J., & Miller, J. (2010). Brain preparation before a voluntary action: evidence against unconscious movement initiation. *Consciousness and cognition, 19*(1), 447-456. doi:10.1016/j.concog.2009.08.006

Valentini, E., Betti, V., Hu, L., & Aglioti, S. M. (2013). Hypnotic modulation of pain perception and of brain activity triggered by nociceptive laser stimuli. *Cortex, 49*(2), 446-462. doi:10.1016/j.cortex.2012.02.005
VandenBos, G. R. (2015). *APA dictionary of psychology., 2nd ed*. Washington, DC: American Psychological Association; US.
VanRullen, R., Reddy, L., & Koch, C. (2006). The continuous wagon wheel illusion is associated with changes in electroencephalogram power at approximately 13 Hz. *J Neurosci, 26*(2), 502-507. doi:10.1523/JNEUROSCI.4654-05.2006
Vingoe, F. J. (1998). Facilitation of sexual pleasure via hypnosis: A case for the court. *Contemporary Hypnosis, 15*(2), 118-124.
Wagstaff, G. F. (2008). Hypnosis and the law: Examining the stereotypes. *Criminal Justice and Behavior, 35*(10), 1277-1294.
Walsh, J. J. (1912). *Responsibility and will power*. New York, NY: D Appleton & Company; US.
Watkins, J. G. (1947). Antisocial Compulsions Induced Under Hypnotic Trance. *Journal of Abnormal Social Psychology, 42*, 4.
Watkins, J. G. (1972). Antisocial behavior under hypnosis: possible or impossible. *The International journal of clinical and experimental hypnosis, 20*(2), 95-100. doi:10.1080/00207147208409280
Wegner, D. M. (1989). *White bears and other unwanted thoughts*. New York: Viking.
Wegner, D. M. (2002). *The illusion of conscious will*. London: MIT Press.
Wegner, D. M., Schneider, D., Carter III, S. R., & White, T. L. (1987). Paradoxical Effects of Thought Suppression. *Journal of Personality and Social Psychology, 53*(1), 9.
Weitzenhoffer, A. M. (1990). "Some conditions of compliance and resistance among hypnotic subjects": Comment: Are induced automatisms necessarily coercive? *American Journal of Clinical Hypnosis, 32*(4), 245-246.
Wells, W. R. (1940). Ability to Resist Artificially induced Dissociation. *The Journal of Abnormal and Social Psychology, 35*(2), 12.
Wells, W. R. (1941). Experiments in the Hypnotic Production of Crime. *The Journal of Psychology, 11*(1), 40. doi:10.1080/00223980.1941.9917019
Werbel, A. D. (1998). Authoritarian Versus Non-authoritarian Induction, Fatigue, and Hypnotic Susceptibility: An Empirical Study of Sigmund Freud's Counter-Will and Hypnosis Theories.
West, R. (2005). Time for a change: Putting the Transtheoretical Model to rest. *Addiction, 100*, 5. doi:10.1111/i.l360-0443.2005.01139.x
West, R. (2015). http://www.primetheory.com/. Retrieved from http://www.primetheory.com/
Yapko, M. D. (2010). Hypnosis in the treatment of depression: An overdue approach for encouraging skillful mood management. *International Journal of Clinical and Experimental Hypnosis, 58*(2), 137-146.
Young, P. (1927). Is Rapport An Essential Characteristic Of Hypnosis? *The Journal of Abnormal and Social Psychology, 22*(2), 130-139.
Zamansky, H. S., & Bartis, S. P. (1985). The Dissociation of an Experience: The Hidden Observer Observed. *Journal of Abnormal Psychology, 94*(3), 6.

Appendix 1 Recruitment Poster/Facebook post

MONASH University

Welcome to my Research Project,

My name is Beau Growcott and I am a Masters/PhD student at Monash University investigating hypnosis and free will. In order to complete my studies I need to find smokers that both do and do not want to quit smoking, and are interested in hypnosis.

If you

- ✶ Are over the age of 18
- ✶ Can speak English and
- ✶ Do not experience a psychiatric condition
- ✶ Are interested in hypnosis

please contact me via email at: [redacted]

Or, if you are not interested personally, please feel free to invite any friends that you believe may be interested in participating in this study.

Thank you.

Kindest regards

[redacted]

Beau Growcott

MUHREC Approval Number: CF12 1146 - 2012000460
Monash University ABN 12 377 614 012

Appendix 2 Explanatory Statement and Consent Form

Do not staple

MONASH University

Explanatory Statement

1 February 2013

Explanatory Statement -

Conscious Will and the Rejection of Hypnosis
This information sheet is for you to keep.

My name is Beau Growcott and I am conducting a research project with Dr Philip Greenway and Associate Professor Felicity Allen, psychologists from Monash University in the Faculty of Education, towards a combined Masters/Doctorate of Philosophy at Monash University. This means that I will be writing a thesis that is the equivalent of a 300-page book.

You are invited to take part in this study. Please read this Explanatory Statement in full before making a decision.

Your contact details were made available to me via a social networking site, and you are eligible for this study because you are a smoker.

If you cannot speak English or have been diagnosed with a psychiatric condition, you will not be eligible for this study.

The aim of this study is to further understand the power and limitations of hypnosis. I am conducting this research to learn about the relationship between motivation and success in hypnosis.

Possible benefits
Participating in the study will provide an opportunity for you to experience hypnosis.

What does the research involve and how long will it take?
This study involves several questionnaires, which will take approximately 20 minutes to complete, and two one-hour-long sessions of hypnosis. The questionnaires will be completed once at the beginning of the study, and again six months later, at the study's conclusion.

There will also be a short interview following the second session of hypnosis and during the 6-month follow up. These interviews will be recorded for the purposes of data collection, and will later be transcribed.

You are also welcome to request a recording of the hypnosis session for your own future use.

Inconvenience/discomfort
While you are freely able to continue smoking, there is a possibility that you will quit or reduce your smoking following your participation in this study. Please consider this carefully when agreeing to participate in this study.

You can withdraw from the research
Being in this study is voluntary and you are under no obligation to consent to participate. However, if you do consent to participate, you may withdraw from further

Confidentiality
It is important that we keep your details confidential. As such, your data will be assigned a number, and no identifying information will be used. No identifying information or individual data will be published.

Storage of data
Data collected will be stored in accordance with Monash University regulations, kept on University premises, in a locked filing cabinet for 5 years. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

Results
If you would like to be informed of the aggregate research finding, please contact myself, Beau Growcott, at beau.growcott@monash.edu. The findings will be available for a period of 12 months following their collection.

If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator:	**If you have a complaint concerning the manner in which this research** CF12/1146 - 2012000460 **is being conducted, please contact:**
Dr Phillip Greenway **Philip.Greenway@monash.edu** **Associate Professor Felicity Allen** **Felicity.Allen@monash.edu**	Executive Officer Monash University Human Research Ethics Committee (MUHREC) Building 3e Room 111 Research Office Monash University VIC 3800 Tel: +61 3 9905 2052 Fax: +61 3 9905 3831 Email: [redacted]

Thank you.

[redacted]

Beau Growcott

Ph.D. Candidate.

Consent Form
Conscious Will and the Rejection of Hypnosis

NOTE: This consent form will remain with the Monash University researcher for their records

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that:

I have never been diagnosed with a psychiatric condition	☐ Yes ☐ No
I agree to be interviewed by the researcher	☐ Yes ☐ No
I agree to complete questionnaires asking me about my smoking, and my participation in this project	☐ Yes ☐ No
I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that if I wish to, I can withdraw at any stage of the project without being penalised or disadvantaged in any way	☐ Yes ☐ No
I understand that I may freely choose to continue smoking following my participation in this study, however that I may also stop smoking following my participation in this study.	☐ Yes ☐ No
I understand that any data that the researcher extracts from the interview for use in the report or published article will not, under any circumstances, contain names or identifying characteristics.	☐ Yes ☐ No
I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party.	☐ Yes ☐ No

Participant's name

Signature

Date

Appendix 3 Data Collection Documents

Participant Tracking Document

Name/ ID NUMBER	
Contact Number	
Group	Intention/No Intention
Explanatory Statement	
Consent	
Smokerlyzer	
Research Questionnaire	
SOCRATES	
Self-Exempting Beliefs	
*fit with EEG	
Hypnosis Session 1 (date)	
Hypnosis Session 2 (date)	
Post-Hypnosis Interview (date)	
Six Month Follow Up (date)	

1a. Research Questionnaire
Phase 1

Participant Identification Number: _____

Demographic Information

Please circle to indicate your details

1. Gender: M/F

2. Age: (18 – 29) (30 – 49) (50+)

Current Cigarette Consumption Information

3. On average, approximately how many cigarettes, including factory made and roll-your-own, do you smoke per day?

_____ cigarettes per day

4. On average, approximately how many cigarettes, including factory made and roll-your-own, do you smoke per week?

_____ cigarettes per week

5. What was the longest time, if ever, that you have quit smoking for?

_____ months _____ weeks _____ days

1b. Personal Drug Use Questionnaire (SOCRATES 8D)

INSTRUCTIONS: Please read the following statements carefully. Each one describes a way that you might (or might not) feel about your drug use. For each statement, circle one number from 1 to 5,to indicate how much you agree or disagree with it right now. Please circle one and only one number for every statement.

	NO! Strongly Disagree	No Disagree	Undecided or Unsure	Yes Agree	YES! Strongly Agree
1. I really want to make changes in my use of cigarettes.	**1**	**2**	**3**	**4**	**5**
2. Sometimes I wonder if I am an addict.	**1**	**2**	**3**	**4**	**5**
3. If I don't change my cigarette use soon, my problems are going to get worse.	**1**	**2**	**3**	**4**	**5**
4. I have already started making some changes in my use of cigarette.	**1**	**2**	**3**	**4**	**5**
5. I was using cigarettes too much at one time, but I've managed to change that.	**1**	**2**	**3**	**4**	**5**
6. Sometimes I wonder if my cigarette use is hurting other people.	**1**	**2**	**3**	**4**	**5**
7. I have a smoking problem.	**1**	**2**	**3**	**4**	**5**
8. I'm not just thinking about changing my cigarette use, I'm already doing something about it.	**1**	**2**	**3**	**4**	**5**
9. I have already changed my cigarette use, and I am looking for ways to keep from slipping back to my old pattern.	**1**	**2**	**3**	**4**	**5**
10. I have serious problems with cigarettes.	**1**	**2**	**3**	**4**	**5**
11. Sometimes I wonder if I am in control of my cigarette use.	**1**	**2**	**3**	**4**	**5**
12. My cigarette use is causing a lot of harm.	**1**	**2**	**3**	**4**	**5**
13. I am actively doing things now to cut down or stop my use of cigarette.	**1**	**2**	**3**	**4**	**5**
14. I want help to keep from going back to the smoking problems that I had before.	**1**	**2**	**3**	**4**	**5**
15. I know that I have a cigarette problem.	**1**	**2**	**3**	**4**	**5**
16. There are times when I wonder if I use cigarettes too much.	**1**	**2**	**3**	**4**	**5**
17. I am addicted to smoking cigarettes	**1**	**2**	**3**	**4**	**5**
18. I am working hard to change my cigarette use.	**1**	**2**	**3**	**4**	**5**
19. I have made some changes in my cigarette use, and I want some help to keep from going back to the way I used before.	**1**	**2**	**3**	**4**	**5**

1c. Self Exempting Beliefs Questionnaire

Please indicate on the scale provided, the extent to which you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The medical evidence that smoking is harmful is exaggerated	**1**	**2**	**3**	**4**	**5**
2. More lung cancer is caused by such things as air pollution, petrol, and diesel fumes than smoking	**1**	**2**	**3**	**4**	**5**
3. I think I must have the sort of good health or genes that means I can smoke without getting any of the harms	**1**	**2**	**3**	**4**	**5**
4. I think I would have to smoke a lot more than I do to put my health at risk	**1**	**2**	**3**	**4**	**5**
5. Lots of doctors and nurses smoke, so it cannot be all that harmful	**1**	**2**	**3**	**4**	**5**
6. Cancer mostly strikes people with negative attitudes	**1**	**2**	**3**	**4**	**5**
7. Everything causes cancer these days	**1**	**2**	**3**	**4**	**5**
8. They will have found cures for cancer and all the other problems smoking causes before I am likely to get any of them	**1**	**2**	**3**	**4**	**5**
9. Smoking is no more risky than lots of other things that people do	**1**	**2**	**3**	**4**	**5**
10. Smoking cannot be all that bad for you because many people who smoke live long lives	**1**	**2**	**3**	**4**	**5**
11. You can overcome the harms of smoking by doing things like eating healthy food and exercising regularly	**1**	**2**	**3**	**4**	**5**
12. I would rather live a shorter life and enjoy it than a longer one where I will be deprived of the pleasure of smoking	**1**	**2**	**3**	**4**	**5**
13. If smoking was so bad for you, the government would ban tobacco sales	**1**	**2**	**3**	**4**	**5**
14. You have got to die of something, so why not enjoy yourself and smoke	**1**	**2**	**3**	**4**	**5**
15. Smoking cannot be all that bad because some top sports people smoke and still perform well	**1**	**2**	**3**	**4**	**5**
16. It is dangerous to walk across the street	**1**	**2**	**3**	**4**	**5**

2. Hypnosis Script with Stop Smoking Suggestions

See attached.

Checklist with clients before they begin hypnosis

- Explanatory Statement
- Consent Form
- How hypnosis works
- You can stop the process at any time
- The option of recording this
- *other*

Number of deepeners required

Session 1	
Session 2	

Duration of hypnotic session

Session 1	
Session 2	

Days between sessions

Notes from hypnosis – Any notable events.

Participant Identification Number: _____

Demographic Information

Current Cigarette Consumption Information

3.On average, approximately how many cigarettes, including factory made and roll-your-own, do you smoke per day?

_____ cigarettes per day

4. On average, approximately how many cigarettes, including factory made and roll-your-own, do you smoke per week?

_____ cigarettes per week

5. What was the longest time, if ever, that you have quit smoking for?

_____ months _____ weeks _____ days

2b. Personal Drug Use Questionnaire (SOCRATES 8D)

INSTRUCTIONS: Please read the following statements carefully. Each one describes a way that you might (or might not) feel about your drug use. For each statement, circle one number from 1 to 5,to indicate how much you agree or disagree with it right now. Please circle one and only one number for every statement.

	NO! Strongly Disagree	No Disagree	Undecided or Unsure	Yes Agree	YES! Strongly Agree
1. I really want to make changes in my use of cigarettes.	**1**	**2**	**3**	**4**	**5**
2. Sometimes I wonder if I am an addict.	**1**	**2**	**3**	**4**	**5**
3. If I don't change my cigarette use soon, my problems are going to get worse.	**1**	**2**	**3**	**4**	**5**
4. I have already started making some changes in my use of cigarette.	**1**	**2**	**3**	**4**	**5**
5. I was using cigarettes too much at one time, but I've managed to change that.	**1**	**2**	**3**	**4**	**5**
6. Sometimes I wonder if my cigarette use is hurting other people.	**1**	**2**	**3**	**4**	**5**
7. I have a smoking problem.	**1**	**2**	**3**	**4**	**5**
8. I'm not just thinking about changing my cigarette use, I'm already doing something about it.	**1**	**2**	**3**	**4**	**5**
9. I have already changed my cigarette use, and I am looking for ways to keep from slipping back to my old pattern.	**1**	**2**	**3**	**4**	**5**
10. I have serious problems with cigarettes.	**1**	**2**	**3**	**4**	**5**
11. Sometimes I wonder if I am in control of my cigarette use.	**1**	**2**	**3**	**4**	**5**
12. My cigarette use is causing a lot of harm.	**1**	**2**	**3**	**4**	**5**
13. I am actively doing things now to cut down or stop my use of cigarette.	**1**	**2**	**3**	**4**	**5**
14. I want help to keep from going back to the smoking problems that I had before.	**1**	**2**	**3**	**4**	**5**
15. I know that I have a cigarette problem.	**1**	**2**	**3**	**4**	**5**
16. There are times when I wonder if I use cigarettes too much.	**1**	**2**	**3**	**4**	**5**
17. I am addicted to smoking cigarettes.	**1**	**2**	**3**	**4**	**5**
18. I am working hard to change my cigarette use.	**1**	**2**	**3**	**4**	**5**
19. I have made some changes in my cigarette use, and I want some help to keep from going back to the way I used before.	**1**	**2**	**3**	**4**	**5**

2c. Self Exempting Beliefs Questionnaire

Please indicate on the scale provided, the extent to which you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The medical evidence that smoking is harmful is exaggerated	**1**	**2**	**3**	**4**	**5**
2. More lung cancer is caused by such things as air pollution, petrol, and diesel fumes than smoking	**1**	**2**	**3**	**4**	**5**
3. I think I must have the sort of good health or genes that means I can smoke without getting any of the harms	**1**	**2**	**3**	**4**	**5**
4. I think I would have to smoke a lot more than I do to put my health at risk	**1**	**2**	**3**	**4**	**5**
5. Lots of doctors and nurses smoke, so it cannot be all that harmful	**1**	**2**	**3**	**4**	**5**
6. Cancer mostly strikes people with negative attitudes	**1**	**2**	**3**	**4**	**5**
7. Everything causes cancer these days	**1**	**2**	**3**	**4**	**5**
8. They will have found cures for cancer and all the other problems smoking causes before I am likely to get any of them	**1**	**2**	**3**	**4**	**5**
9. Smoking is no more risky than lots of other things that people do	**1**	**2**	**3**	**4**	**5**
10. Smoking cannot be all that bad for you because many people who smoke live long lives	**1**	**2**	**3**	**4**	**5**
11. You can overcome the harms of smoking by doing things like eating healthy food and exercising regularly	**1**	**2**	**3**	**4**	**5**
12. I would rather live a shorter life and enjoy it than a longer one where I will be deprived of the pleasure of smoking	**1**	**2**	**3**	**4**	**5**
13. If smoking was so bad for you, the government would ban tobacco sales	**1**	**2**	**3**	**4**	**5**
14. You have got to die of something, so why not enjoy yourself and smoke	**1**	**2**	**3**	**4**	**5**
15. Smoking cannot be all that bad because some top sports people smoke and still perform well	**1**	**2**	**3**	**4**	**5**
16. It is dangerous to walk across the street	**1**	**2**	**3**	**4**	**5**

3. Smokerlyzer and EEG Scores

	Smokerlyzer Reading
Baseline	
1 week	
3 months	
6 months	

	EEG Measure
Session 1a	
Session 1b	
Session 2a	
Session 2b	

4. Post-hypnosis Follow-up Interview

Record

If you feel comfortable to do so, please answer the following questions about your experience participating in this research project:

1. How do you feel about your smoking?

_____
_____
_____
_____

2. Have you experienced a change since the beginning of this project? (If yes, do you know why?)

_____
_____
_____
_____

3. How do you understand free will?

_____
_____
_____
_____

4. How do you understand hypnosis?

_____
_____
_____
_____

5. Do you have any other feedback regarding your experience or this project?

_____
_____
_____
_____

Thank you for you cooperation.

Appendix 4 Hypnosis Script

Session 1

Just make sure your mobile is switched off.

Please remove your shoes or any jewellery that may interfere with your physical comfort.

Please close your eyes and lay down comfortably. Keep your legs separated by at least 10 to 20 centimetres, so that no part of your calves or thighs are touching. Separate your hands and let them lie loosely in your lap... or by your sides if that's more comfortable.

It doesn't matter if you feel the need to move slightly now and again... you don't have to be absolutely still... just avoid movement where possible… be comfortable… and relax your whole body as much as you can. Our first goal is for you to become unaware of your body.

From time to time, you'll be aware of other sounds … inside the building, outside the building… passing traffic, voices ... but these won't disturb you. In fact, they'll probably help to relax you, because just for now the world outside is absolutely unimportant to you.

Now, take a deep breath and fill up your lungs completely… good… now, exhale slowly… Good.

Your mind may already begin to wander… that's ok.

Now, take a second, and even deeper, breath. Take in all the air that your lungs can hold… good… now exhale slowly…

I'd like you to mentally picture… imagine… that you are looking at the muscles in the tips of the toes on your left foot. In your imagination, follow those muscles as they move back into the ball of the foot… back into the arch, … and all the way back into the heel. Now, turn all those muscles loose. Let them grow limp and lazy, just like a handful of loose rubber bands.

Now, as the muscles begin to relax, just let your mind relax also. Let it drift where it will… off to pleasant scenes in your imagination. And as your mind drifts, let the relaxation move on up… into your ankle… and then, from your ankle, all the way up into your left knee. Feel the calf muscles begin to grow loose and limp… heavy, and so relaxed. All of your tensions just fading away, you're relaxing more with each easy breath that you take. Begin breathing more deeply now, just as you breathe each night, when you are deep and sound asleep. Just imagine that you can see your breath as a white mist, coming from your nostrils. Each and every time that you exhale this white mist, you are freeing yourself of tension, and going deeper, deeper into drowsy relaxation. Now, the relaxation is spreading from your knee, all the way to your left hip, your long thigh muscles are turning loose, easing off, and just relaxing. As they relax, just let go a little more… gently, calmly, easily, allowing a pleasant state of easy relaxation to drift through your body.

Now let the wave of relaxation that started from the toes on your left foot move over into the toes of your right foot… back into the arch, and all the way back to your heel. Turn all of those muscles loose, and go deeper and deeper into relaxation. Into the ankle… letting the muscles go. From the ankle, all the way up into your right knee. The calf muscles turning loose… letting go...

You're relaxing more with each easy breath you take… With each sound that you hear… Each sound carries you deeper and deeper.... The relaxation moving from your knee, all the way up into your right hip. The long thigh muscles growing limp and lazy. Now, as those muscles relax, just go all the way down, deeper and deeper into drowsy sleep. Turning all your muscles loose.

Now, the wave of relaxation moves on up, into your stomach... into your diaphragm and abdominals … and as it does, each muscle and nerve lets loose … releasing tension… relaxing.

You're drifting down, deeper and deeper. Down, deeper into sleep. The relaxation is now moving through your ribs… the muscles relaxing… into the broad muscles of your chest. The muscles in your chest are growing limp and loose, and your feeling so relaxed. All of your tensions are fading away. You're relaxing more and more, with each and every beat of your heart… going deeper and deeper. The relaxation moving into your neck, the muscles letting go… All around the neck, the muscles relaxing, just as they relax each night when you are deep asleep. Now the wave of relaxation is starting down your back… from the base of the skull to the base of the spine. Each muscle and nerve along the spine getting loose… tensions fading away… relaxing… drifting down deeper and deeper. The relaxation spreading out into the broad muscles of your back… deeper and deeper.

Across the small of the back… across all the muscles of your back and into your shoulders. Turn the muscles loose… allow yourself to go deeper and deeper. All the muscles in your shoulder letting go. The relaxation moving from your shoulders, down to your elbows in both arms. Your upper arm muscles turning loose, easing off, and just relaxing now. From the elbows, down to the wrists on both arms, the forearm muscles growing limp and lazy. From the wrists to the fingertips on both hands, each muscle and nerve letting loose any tensions, relaxing, you're drifting down. Deeper and deeper. Into the jaw… your muscles relaxing. All around the mouth, the muscles letting go. Up through the nose, each nerve gives way. All around the eyes, the muscles are heavy, and so relaxed. Even your eyebrows are relaxing now. Across the forehead, the muscles smooth out. Across the top of the skull… down the back of the neck… down through the temples, back around the ears, all of your muscles becoming loose, and lazy… just like a handful of loose rubber bands.

And you may now feel, a pleasant tingling sensation in the tips of your toes, or in your fingertips… a pleasant tingling sensation, growing stronger and stronger, as your entire body is being bathed in the pleasant glow of complete and utter relaxation… it feels so good to relax… Each muscle and nerve in your body loose and limp and relaxed, and you feel good…

Deepener

... Nobody wanting anything, nobody expecting anything, and absolutely nothing whatsoever for you to do, except to relax... just letting your mind and imagination drift... feeling lazy, easy, and comfortable...

Now, I want you to imagine that you're standing on the terrace of a lovely old house... a house like a stately home or country mansion. You can feel the sun on your head and shoulders... it's not too hot, just comfortable... and there's a gentle breeze playing against your skin. As you look around you, you notice an elegant flight of marble steps... ten broad steps leading down into a beautiful sunken garden... a garden where you sense peace, wellbeing and comfort. Make it really vivid in your mind. In a moment I'm going to count down from ten to zero and as I count all the way down from ten to zero, I want you to imagine that each number is a step down on this beautiful staircase... a step down towards the beautiful garden below... and each step you take... is another step down into a deeper and deeper level of relaxation... so that by the time I get to zero, you will be as deeply relaxed as you can ever imagine... whilst still being able to hear and respond to the sound of my voice...

10.. taking the first step down now, relaxing and letting go...

9... feeling more and more relaxed... no need to hurry... plenty of time...

8... moving down easily...

7... deeper and deeper...

6... deeper still, your breathing becoming slower and steadier...

5... really relaxing now... just letting go…

4... becoming calmer and calmer...

3... calmer still...

2... more and more relaxed…

1... all the way down now to...

0...

And now you find yourself in this wonderful garden... you can feel the softness of the newly cut grass beneath your feet... as the scent of masses upon masses of brightly coloured flowers seems to envelope you... and there's the gentle sound of birds singing... echoing faintly in the stillness of the air... it's almost a magical place, stretching into the distance as far as the eye can see in all directions, with beautiful shrubs, tall elegant trees... and an ornamental fountain which seems to feed into a gentle trickling stream. This fascinates you and you wander to the edge of the stream and gently lower yourself down onto the soft, grassy bank...and just sit for a while, gazing into the cool clear water... marvelling at the sense of tranquillity that sweeps over you... and listening to the faint sound of the fountain splashing into the pool that feeds this gentle stream. After a little while, you lay back on the grass and gaze up at the clearest of blue skies... and as you relax even more… your eyes begin to close and you just drift off into a deep and relaxing sleep... and as you sleep, you have a dream...

You dream that your whole body is becoming lighter... lighter and lighter... so light that you feel that you must surely begin to float on air at any moment... and then you feel yourself just floating and drifting, gently borne aloft and supported by the softest of warm breezes. And you can somehow see, through your closed eyelids, that you're floating in a sea of colour... a warm sea of colour that relaxes and comforts you as you just drift... suspended in warmth… and with colour that seems somehow unreal and yet, at the same time, has a comforting familiarity to it... you're aware of misty reds and oranges... soft yellow tones… gentle greens and blues that seem somehow like clouds... and the deepest, softest indigos and violets that you could ever have imagined... and it begins to dawn on you that you're floating in a rainbow, a magical rainbow... because in this rainbow, time and space don't exist in the same way that we usually know them to exist... you might have floated here for a moment... or for a hundred years... or maybe, even for a lifetime... or perhaps just for the blinking of an eye... you could have floated forwards in time, to a time that could be far beyond our future... or maybe back in time, back before your own lifetime... it gradually begins to seem to you that you might even be able to float here for just as long as you wish... with this wonderful relaxed feeling... just floating and drifting through this magical sea of gentle flowing colours where time seems to all of a sudden be of such little importance...

You are still pondering on these thoughts, when you feel yourself beginning to float gently downwards...lower and lower, softly sinking, down through this beautiful rainbow... becoming even more relaxed... until, eventually, you realise that you've stopped floating downwards... and you find yourself on the shore of a tranquil lake... a large tranquil lake, surrounded by softly rolling hills that are shrouded in a gentle, silver mist... there are trees and sweetly scented flowering shrubs, and grasses growing at the water's edge... and everything is bathed in a beautiful golden light... a golden light that seems to bathe everything in its warmth... and you find yourself marvelling at the sense of deep calmness and comfort that seems to fill your entire being, as you stroll lazily along the sandy shore of this wonderful lake... noticing with a sort of lazy curiosity that it seems to be constantly changing colour... subtle changes blending so smoothly... that it's difficult for you to know exactly when a gentle, pale blue becomes a soft violet... or when a deep violet became a relaxing, translucent green... the changes of colour fascinate you, and you settle yourself down onto a small, smooth rock and just gaze out across the crystal clear waters...

Every so often, something… a fish perhaps... just something... breaks the surface, creating ripples that seem to flow gently and endlessly in all directions...ripples that eventually lap against the edges of the rock that you're sitting on… you smile and lean forward to dabble your hand amongst them... and as you do so, you create yet more ripples, ripples that shimmer in a kaleidoscope of different colours across the lake...interacting with the others and making new,

ever changing patterns... you realise that this tranquil place is the pool of all knowledge... that while you are here, you are part of everything and everything that is a part of you...and you find it easy, so very easy to open your mind... and let go of any barriers to memory or learning...

Because you are aware of everything… and yet you are not aware. You are listening with your subconscious mind, while your conscious mind is far away, and not listening. Your subconscious mind is awake, and listening, and hearing everything… while your conscious mind remains very relaxed and peaceful. You can relax peacefully because your subconscious mind is taking charge, and when this happens, you let your subconscious do all the listening. Your subconscious mind knows, and because your subconscious mind knows, your conscious mind does not need to know… and it can stay asleep, and not mind while your subconscious mind stays wide awake.

You have much potential in your subconscious mind, which you don't have in your conscious mind. You can remember everything with your subconscious mind… but you cannot remember everything with your conscious mind. You can forget so easily, and with forgetting certain things you can remember other things. Remembering what you need to remember, and forgetting what you can forget. It does not matter if you forget… you need not remember what you can forget. Your subconscious mind remembers everything that you need to know… so you can let your subconscious mind listen and remember… while your conscious mind sleeps and forgets. Just listen with your subconscious mind, and when you're listening very, very carefully, your conscious mind will not mind what it forgets, because your subconscious mind will remember what it has forgotten.

And now your mind is prepared and receptive to everything I am telling you... and everything I say, if it is for your benefit, will be accepted and acted upon by your subconscious... it will have a steadily increasing effect upon the way you think, the way you feel, and the way you behave… and the influence of these suggestions, as they are for your benefit, will continue to increase over the coming days, and weeks, and months...

Ego strengthening

And as you relax, going deeper and deeper with each moment… the deeper part of your mind is aware of the sound of my voice.

The deeper part of your mind is listening carefully… to each word that I am saying…

Each day you will find it easier and easier to concentrate… to focus your thoughts and attentions… on whatever you wish to concentrate upon…

And having done that, your thoughts will move in a calm, clear manner… enabling you to think clearly and easily… to think a matter through to its logical conclusion…

It's easy to make decisions when your thoughts are clear… to decide upon a course of action… to resolve a situation… And so easy to remember something later… that you have concentrated upon in the past… to remember it, when you want to…

And memories you wish to recall… can be like a cork coming up from the bottom of a barrel of water… coming up to the surface of the mind… coming into view… whilst other memories… not needed at the time… can sink away into the depths… like a stone sinking to the bottom of a barrel.

And naturally, when your mind is functioning well… your feelings of confidence are strengthened… your self-esteem grows stronger day by day… you are feeling better within… more self assured and more confident in your abilities…

Day by day, you will find yourself feeling more and more relaxed… tranquil… You will find it easier to deal constructively with any problems that may arise… and to communicate effectively with others…

In fact, day by day… you will find yourself coping better… finding it easier in so many different ways… thinking more clearly and feeling better…

Day by day… in every way… feeling better and better…

Smoking Cessation

And with confidence, you realise that you know… deep inside yourself… that you are your own master, that nobody could ever control you, and therefore you can be whatever you want to be... you know that nobody controls you or your destiny, except you... because you have free choice… and you can make your own decisions, for yourself, in your own time... and because of this, you are going to decide for yourself when you want to become a non-smoker... you are going to decide for yourself when to actually become a non-smoker... and it's nobody's business but yours when you decide that this should so... and I can't know when you'll make this decision... I can only wonder when it will be... whether it's today or tomorrow... whether it's some time after that... or whether it's right now… right at this very moment… I cannot know when that decision will be made, but I do know that you will make that decision for yourself... when the time is right for you to make that decision... and I do know that when you've made that decision, then that natural tenacity of yours, that natural ability to stay with a decision you've made, is going to make it easy, almost ridiculously easy in fact, to simply STOP the smoking habit for good.

When the time is right for you, whether that time is today, right now, or tomorrow, or some time after that, you're going to find it so easy to make that decision to quit and even easier to stick with that decision... and you're going to get a whole lot of pride and pleasure out the ease by which you simply decide to do it... a huge amount of real pride and pleasure when you are a genuine non-smoker."

This is something you are going to decide for yourself, in your own time, when you want to do it... something you will pursue single-mindedly so that you are completely indifferent to other peoples' opinions of your decision to quit the habit, whatever those opinions might be... others will simply be unable to change your mind by whatever methods the seek to use... because this is something you want for yourself and you are going to find that your determination is utter and complete... and when you make that decision… that you and you alone are going to make, to become a non-smoker, you're going to just know... deep inside yourself... that you are going to find it easy... that you can deal with what used to be a problem… with absolute ease and control… so that something which you privately thought might be difficult… is going to turn out to be easy... ridiculously easy, in fact... so easy that you actually become a source of inspiration to others.

It's not necessary for you to attempt to work out or guess when the moment is right for you to make your decision to quit the smoking habit for good... you'll just suddenly know when the time is right to do it... and you will not even try to do it before that time... because it's important that you do not... do it until you just KNOW that... the time is now... and you will know when that time is right... and that moment can be at any time and may even have already passed... and when... the time is now...

you'll be a NATURAL NON-SMOKER from that very moment onwards.

Take a few moments now… to allow your mind to experience and enjoy this feeling… and this message…

1 - 5 minutes of silence

Awakening

Now, of course… if you wished to enjoy these deep relaxing feelings for a few more moments… that would be fine… but there always does come a time when we want to turn to other pleasures in life… so in a moment… as I count from 1 to 5, notice yourself feeling more alert, aware, and oriented, and… when I get to 5, allow your eyes to comfortably open when you wish… and it might surprise you how long those comfortable relaxed feelings continue as you resume your activities… for the rest of the day…

ONE… The normal… natural energy… is returning to your arms… and your legs… and your entire body… TWO… As you come up closer and closer to the surface… feeling good… in every way… the normal, natural feelings… of weight… and temperature returning… THREE… Returning… to here and now… Feeling good… in every way… FOUR… Your eyes opening… (comment when it occurs) goooood…. Sparkling clear… becoming wide awake… waking up now… good… FIVE… Wide awake… wide awake now… notice how good you feel… (stretch)… fine… good

Session 2

Alright … just make yourself comfortable and close your eyes. Just separate your hands and let them lie loosely in your lap... or by your sides if that's more comfortable. It's better if your legs are uncrossed. And it doesn't matter if you feel you need to move just slightly, now and again. You don't have to be absolutely still... just be comfortable and relax your whole body as much as you can. Now I want you to take a deep breath and hold it for a moment before breathing out slowly… just allowing your whole body to relax as you do. And I want you to keep your eyes closed and just keep listening to the sound of my voice... even though you'll be aware of other sounds too... such as sounds inside the building, sounds from outside, maybe passing traffic... but these will not disturb you. In fact, they'll help you to relax … because just for now the world outside is absolutely unimportant to you. The only sound you're interested in is the sound of my voice. And while you're listening to the sound of my voice, I want you to concentrate for a moment on your breathing... breathing slowly and steadily and evenly, just as if you were trying to convince somebody that you were absolutely sound asleep. And as you breathe out each time, just allow your whole body to relax more and more... so that you gradually find yourself feeling as if your whole body is sinking further and further into the couch with each breath you take...

Before you let go completely, and go into a deep hypnotic state … just let yourself listen carefully to everything I say to you ... It's going to happen automatically ... so you don't need to think about it ... You don't need conscious control over what happens ... just like our last session… the muscles in and around your eyes will relax all by themselves as you continue breathing ... easily and freely ... And without thinking about it, you will soon enter a deep, peaceful, relaxed sort of situation without any effort. There is nothing important for your conscious mind to do... absolutely nothing whatsoever to do except to relax. There is nothing really important except the activities of your subconscious mind ... and that can be just as automatic as dreaming ... and you know how easily you can forget your dreams when you awaken. You are already drifting into this relaxed state of hypnosis. Without noticing it, you have already altered your rate of breathing ... You are breathing much more freely and easily... and yet you had not thought about your breathing except at the beginning... and you might begin to notice yourself becoming even more relaxed now… even more relaxed than our last session… even more relaxed than you've ever been…

And now, you can really enjoy relaxing more and more, and your subconscious mind will listen to each word I say. And it keeps becoming less important for you to consciously listen to my voice. Your subconscious mind can hear … even if I whisper. You are continuing to drift into a more detached state as you examine privately in your own mind ... secrets, feelings, sensations, and behaviors you didn't know you had. At the same time, letting go completely ... at your own pace ... just as rapidly as it feels you are ready. You continue becoming more relaxed and comfortable as you lay there with your eyes closed ... as you experience that deepening comfort… You don't have

to move, or talk, or let anything bother you. Your own inner mind can respond automatically to everything I tell you ... and you will be pleasantly surprised with your continuous progress ...

You are getting much closer to a deep hypnotic trance ... And you are beginning to realize that you don't care whether or not you are going into a deep trance ... Being in this peaceful state enables you to experience the comfort of the hypnotic trance ... Being hypnotized is always a very enjoyable, very pleasant, calm, peaceful, completely relaxing experience ... It seems natural to include hypnosis in your future ... either self-hypnosis... or having someone hypnotise you. You will always enjoy the sensations ... of comfort ... of calmness ... and all the other sensations that come automatically from this wonderful experience. You will find yourself feeling really happy that you have now discovered hypnosis... discovered hypnosis and all the positive benefits that it can mean for you. Because you are learning something about yourself ... you are developing your own techniques of therapy ... without knowing you are developing them.

You can have it as a surprise sooner or later ... a very pleasant surprise. Imagine yourself in a place you like very much ... by a lake, or by the ocean ... perhaps you are floating gently on a sailboat on a peaceful lake ... on a warm, summer day. You are continuing to relax even more now ... and you continue becoming more comfortable. This is your own world that you like very much. You are going to find that any time you want to spend a few minutes by yourself, relaxing, and feeling very comfortable and serene, you can automatically go back to the feeling you're experiencing now. You can put yourself into this world anytime you like. There are times when you will want this serene feeling. And it is yours whenever you want it ...

Continue enjoying this pleasant experience as your subconscious mind is receiving everything I tell you. And you will be pleased at the way you automatically respond to everything I say.

Deepener

I wonder if you can imagine a big old house somewhere ... It's the kind of house you can imagine yourself being perfectly comfortable in. Somehow the sun shines on that house. It's a secure… familiar place... It's a lovely place. You can imagine people having meals there. Imagine that in the evening they go into the living room... and maybe they put on music... and they listen to soft gentle music... and that soft gentle music makes them relax and drift away... and nothing bothers them...

And they lie there relaxing... imagining that music... in that happy house. You can imagine them so relaxed... that they feel as if they are sinking into the couch... as the couch is supporting them... gently... safely...

And I wonder if you can feel yourself sinking gently into that couch, ... and feeling yourself supported as if you are on a big, fleecy cloud... just drifting down and down...into that cloud... feeling yourself going deeper and deeper... deeper and deeper...

Just allowing yourself to drift away ... nothing is important... nothing matters... And you can feel yourself going down and down…

And my voice can go with you … and become whatever you want it to be. My voice can become the sound of rain on the window pane … on a winter's night. Or my voice can be the sound of [reference to any distracting, external noise present]... or a parent... or a friend. Or my voice can be the wind blowing along an empty street... picking up a leaf … carrying that leaf away ... here and there... going left and right... up and down... with the wind carrying that leaf safely and gently... as it goes round and round... swirling and swooping...

And then it goes down... gently ... swirling round... as if it is in a spiral stair case...

And I wonder if you can imagine a spiral staircase... the way the spiral staircase goes down and round and round... and imagine yourself on that spiral staircase... going down and down and round... there's a handrail so it feels safe...

And you can count yourself down that spiral staircase... and the first step is

TEN... and the next step goes down deeper

NINE... and EIGHT feeling more and more relaxed … more comfortable...

and then SEVEN … drifting away...

and then SIX … down and down... really relaxed ...

and then FIVE deeper and deeper...

and then FOUR... nothing matters... nothing counts... you have nothing to do... you don't have to do anything... you don't have to think... listen... anything at all...

and then THREE … nearing the bottom... totally relaxed...

and then TWO ... almost there ...

and then ONE... gone down... into some dark, warm place... where your mind can just drift away. If any thoughts come into your mind just let them go. Like little puppies running away … wagging their tails. You can ignore them... they'll just go away...

and then finally ZERO… you're at the bottom... feeling really good... totally relaxed... and you can just enjoy that feeling of release and relaxation... knowing that everything's OK and you're OK... and there are no issues... nothing you have to do...

Good. That's very good [client].

Ego Strengthening

And as you are relaxing, deeper and deeper with each moment… the deeper part of your mind is aware of the sound of my voice.

The deeper part of your mind is listening carefully… to each word that I am saying…

Each day you will find it easier to concentrate… to focus your thoughts and attentions… on whatever you wish to concentrate upon…

And having done that, your thoughts will move in a calm, clear manner… enabling you to think clearly and easily… to think a matter through to its logical conclusion.

It's easy to make decisions when your thoughts are clear… to decide upon a course of action… to resolve a situation. And so easy to remember something later… that you have concentrated upon in the past… to remember it, when you want to…

And memories you wish to recall… can be like a cork … coming up from the bottom of a barrel … coming up to the surface of the mind… coming into view… whilst other memories… not needed at that time… can sink away into the depths… like a stone sinking to the bottom of a barrel.

And naturally, when your mind is functioning well… your feelings of confidence are strengthened… your self-esteem grows stronger day by day… you are feeling better within… more self assured and more confident in your abilities…

Day by day, you find yourself feeling more relaxed and tranquil… you find it easier to deal constructively with any problems that may arise… to communicate effectively with others.

In fact, day by day… you find yourself coping better … finding it easier in so many different ways… thinking more clearly and feeling better.

Day by day… in every way… you are getting better… and better…

Smoking deepener

I wonder if you can imagine being back in that house... that happy house. And inside that house there's another staircase ... and that staircase goes down towards a door... and you can see the door from the top of the stairs... and as you go down those stairs... you feel yourself going deeper and deeper... really, really relaxed... really entranced. And you can go down those stairs at any speed you want... and when you get to the bottom of those stairs you'll be totally relaxed... totally at ease. And at the bottom of those stairs there is a door... and behind that door is something wonderful... something wonderful for you.

So I would like you now [client name] to go down those stairs... at whatever speed you like. And as you go down each step … you go deeper and deeper and become more and more relaxed.

When you get to the bottom... I want you to tell me what colour the door is...
[Colour]
It is [Colour] ... that's good. And can you open the door?
Yeah
And is it OK to open the door?
Yeah
Good

Now behind that door [client name] are parts of yourself... all the parts of yourself that make you who you are. Your creative side… your humorous side… your intelligent side… your talents … all the different aspects of you … that make you who you are.

And you can imagine going through that door and finding yourself... in amongst all those good parts of yourself ... those parts that make you feel good about yourself. And you can imagine them... pressing around you ... meeting you. And you feel so good because every part of you is valuable. Every part of you is for your own benefit. Every thought you have ... every idea you have... is actually for your good.

And as you look around the room … you can see all these wonderful parts of you... and yet... there's a part missing. And you look carefully around the room and you see on the far wall there's another door. This is a black door... and you go to that door... and you open it carefully... and inside there's another part of you... there's the part of you in there ... that keeps you smoking. You look inside and see this small, awkward part. You can tell [he/she] thought [he/she] was helping when you started smoking... [he/she] thought it was doing something really good for you... helping you to relax… to be cool … to meet new people… to find space… [pause – let client find why it was a good idea, allow enough time for resistance to dissipate]… but over the years… [he/she] has felt things changing… and realized that it's not the same anymore... and now [he/she] is frightened of what you will say and what you might do...

But that's ok… every part of you is valuable... and every part of you means well. And so... I'd like you to go down and embrace that part... comfort it ...talk it into joining you and the other parts of you. You realize that it meant well… but was mistaken. And it's OK to make mistakes... the only thing that's not OK is if you keep making the same mistake... and in your own way... however you can... you persuade that part... that it's OK... that it can stop doing that now... that it doesn't matter any more... because you've made that decision... [pause a moment] Now, you can take that part and leave the room... and as you leave the room the door closes behind you ... and that small, awkward… frightened part... as it goes in amongst all the other parts... begins to change… and grow ... and becomes bigger and stronger. And so you introduce that part to the part of you that is creative ... and the part of you that is in charge of big changes... so that the three of you can work with that part that was smoking … and come up with three creative, positive things to do instead of smoking... that will give you the same benefits. You will be amazed at how fast you can come up with three … or maybe more … things that you can do... that will replace how you used to do things. It might be eating fruit … or it might be brushing your teeth … who knows? But the creative part of you... that wonderful, rich creative part of you ... that's helped you all your life … will help you now. And you can substitute different behaviours for the one you had. You might become curious as to what these behaviours might be … because you will find them arriving naturally...in the next hours and days. And every time that old habit comes to mind a new behaviour will replace it. And that new behaviour will take over … as if it has been there forever. And it will feel so natural... so easy... so intuitive … that you just do it ... for as long as you need to. And when you don't need to … you can stop doing it... because you've changed... you've grown. And you will be really surprised at how comfortably you do it. And in that room... in amongst those parts... you look round ... to the back wall where that black door is... and as you look... that black door is moving… it's shrinking in fact... and it's getting smaller and smaller… until it's the size of a mouse hole. And then it continues to get smaller and smaller… until it just disappears… and that place is sealed away for ever. And then you bring that part into the room with all the other parts... to get in touch with all the other parts of you... the part of your creativity... your laughter... your friendship... your competence… all the parts that make you feel good. They all combine now and make you feel really good. And you feel as good as you have for a very long time... because there's an exciting change in you… and it feels so right... and all those reasons you used to have … have disappeared… vanished… they're now meaningless. And that makes you feel so good … because you know… you've done it. And so with all the best wishes of those good parts … you move towards the other end of the room... and there's another door... and this time you go through into another, new room…

Smoking Cessation

You've stepped forward in time. Imagine it is 6 months from today. Imagine that wherever you are… you suddenly realise that you haven't smoked for six months … and you feel great. You're kind of surprised by how healthy you feel… and you're kind of surprised by how much you love how you feel… physically… mentally… emotionally. Smoking rarely enters your mind now. You can barely remember even having to try and stop. It was like a part of you… a part of you… you weren't even really aware of… a part so deep down in your subconscious… deeper than you even knew of… just changed… shifted… moved… and you barely even noticed.

Change can happen like that. It might feel like… you are making choices… and those choices are coming from a place deep within you… deep, deep down within you. A change can just take place… and a part of you… an unconscious part… can become stronger. And the more conscious you become… the more your subconscious can make your decisions. Sometimes the process of hypnosis is like awakening the subconscious… like exercising it. And, like any muscle, the more you use it, the stronger the muscle becomes. And so, a part of your subconscious can affect a change… easily… effortlessly. Feeling good reminds you of how you changed… six months ago…

There's a difference in you… and your friends notice… your family notices. The way they greet you… the way they talk to you… they sound different. Your hearing is clearer… they look different… your eyesight is better…

And you look around and everything reminds you of how you have changed… and you can be surprised over the next days and hours and weeks... how little things you notice will surprise you... will remind you... of how you have changed … and how good it is. And you can look forward to a long and healthy life...

It feels so good. It's hard to remember why you wouldn't feel this good! You can think back… remember all the way back to your very first cigarette. Memories coming to you that you thought you had forgotten. And it seems so strange… so awkward… that decision. Take a moment to remember that first cigarette… why you chose that cigarette. And as you think about that choice… think about how different you feel about it… how different you have become… how different…

[Give about 90 – 120 seconds to remember]

Little changes… throughout the day and the evening… keep reminding you... of how different you feel about yourself. The first thing in your mind will be a wonderful feeling... of how good you feel now. You can notice that your mouth feels different … and it doesn't want cigarettes anymore. And your lungs feels different… there is a new feeling in your chest… in your nose… on your hands. Your body feels changed. And you realise that every part of your body that came into contact with cigarettes before… is renewed. And more you than ever before… you feel more like you … than ever before…

Mystery Metaphor

It's like how trees grow. Did you know… that hundreds of years ago… a scientist in Wales… grew little willow trees… in pots? And at the beginning of his experiment… he weighed the pot … with the seed and the soil in it… and then carefully watered it… for one whole year… and then by the end of that year… the seed had grown… and with it… the weight of the pot, and soil, and seed… was twice as heavy. And the soil itself… had only decreased in weight… by 2 grams. It makes you wonder… Where did the material come from… it's almost like it came from thin air. At the time… scientists didn't understand that plants take carbon and oxygen from the air… to build leaves… and stems… and bright, beautiful flowers. It teaches us that just because we don't understand a process… doesn't mean it isn't happening. Some things just happen in spite of our understanding. Maybe every time you see a tree… you could remember that it's actually made out of air…

Take a moment to enjoy this message, and let it connect to you… in a way that you… cannot fully understand… yet…

Awakening

Now, of course… if you wished to enjoy these deep relaxing feelings for a few moments more… that would be fine. But there always does come a time when we want to turn to other pleasures in life. So in a moment… as I count from 1 to 5, notice yourself feeling more alert, aware, and oriented, and… when I get to 5, allow your eyes to comfortably open when you wish. And it might surprise you how long these comfortable relaxed feelings continue as you resume your activities… for the rest of the day…

ONE… The normal… natural energy… is returning to your arms… and your legs… and your entire body…

TWO… As you come up closer and closer to the surface… feeling good… in every way… the normal, natural feelings… of weight… and temperature return…

THREE… Returning to the here and now… Feeling good… in every way…

FOUR… Your eyes opening… [Comment when it occurs] … *good*…. Sparkling clear… becoming wide-awake… waking up now… *good*…

FIVE… Wide awake… wide-awake now. Notice how good you feel… (stretch)… fine… good…

Appendix 5 Ethical Approval

MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

Date:	**18 July 2012**
Project Number:	**CF12/1146 - 2012000460**
Project Title:	**Conscious will and the rejection of hypnosis**
Chief Investigator:	**Dr Philip Greenway**
Approved:	**From 18 July 2012 to 18 July 2017**

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, and a copy forwarded to MUHREC before any data collection can occur at the specified organisation. **Failure to provide permission letters to MUHREC before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research**.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

[redacted]

Professor Ben Canny
Chair, MUHREC

cc: Assoc Prof Felicity Allen; Mr Beau Growcott

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton
Telephone +61 3 9905 5490 Facsimile +61 3 9905 3831
Email muhrec@monash.edu www.monash.edu/research/ethics/human/index/html
ABN 12 377 614 012 CRICOS Provider #00008C