

Dream Experiences as a Method of Influencing Behavioural Change

by

Cheri Melchione

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Supervisor:

*Dr. E.M Mojabelo-Batka*

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Declaration:

I declare that Dream Experiences as a Method of Influencing Behavioural Change is my own work and that all the sources that I have used or quoted have been indicated or acknowledged by means of complete references.

Cheri Melchione

Cheri Melchione

Dec. 5, 2015

Date

Dedication:

To My Daughter, who started me on the path of dreams.

One morning at three years old, she woke up from a dream

then she curled up to me and said;

‘Mommy, there was a story in my eyes’.

## Acknowledgements

Before this PhD research process began, I only knew acknowledgments to be sentimental reflections of a personal journey; A heartfelt way of saying thank you to all the people who helped someone along their path. But I now realize how much deeper the acknowledgements really go; they extend well beyond a personal journey.

It was only through the collective knowledge of everyone who had gone before me and the consideration of those ready to come after me that my work became possible. These people who have paved the path, not just with their findings, but with their daring to have ideas that were challenging or inspiring, have had an immeasurable impact on my work. I used to believe that I needed to come up with something profound, something so original that I could be remembered eternally. However, every time I had a breakthrough or made a brilliant connection, every time I *thought* I had an amazing, original idea, my research uncovered there was someone else who had already made the discovery. They did it in a way that was so exceptional and clear that I wondered whether I would ever find my original thought, and if I did, how could I possibly explain it as brilliantly as the people before me. What I now realize is how it all works; discoveries are a cumulative process. These masters who I so admire have built on the works of others, who themselves built on the works of generations before them, and they found inspirations from the smallest of ideas. It doesn't matter if the idea we bring forth is *the* breakthrough idea or just the smallest part of the puzzle that inspires a future breakthrough for someone else, we all have a part to play and that works on the whole to mean something. In the citations section, you will find only a small percentage of those who I wish to

acknowledge, and if you look out into the world and across every library, you will find the rest.

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## **Abstract**

A dream can impact a person so profoundly that it may permanently alter his or her life, beliefs, or behaviour. Most of the time, these gifts of insight happen to only a rare few and usually occur without intention. These life-altering dreams are spontaneous and unpredictable. While most studies focus on the content or meaning of dreams after they occur, this study explores the possibility of using dreams to influence behavioural changes in the waking world. This study examined three of the dream elements associated with profound dreams that could potentially be used to develop a systematic method of using dreams to create behavioural changes. The three elements are (a) Emotion: the ability to generate high-emotion states within a dream; (b) Narrative: the formation of narratives within a dream; and (c) Reality: the ability of the dreamer to perceive and accept the dream as reality.

This study was conducted using a qualitative research design with a narrative analysis approach in order to explore and understand the subjective experiences of two participants. Data were collected through the participants' interviews and dream journals to help determine themes emerging from each of the participants' individual experiences. The themes were then analysed for any information regarding the three elements of dreaming as well as the dreams' personal significance to the dreamer. Further analysis explored whether lucid or non-lucid dreaming was able to intentionally produce an experientially-based shift in a specific target behaviour. The results of this research study suggest that there is potential for using dreams to induce behavioural change. The research provided a preliminary inquiry into this new field of dream therapy. This exploration of key elements to a potential dream method may prove essential to defining

a basic framework and the tools that may be required to implement a new dream method. Future studies are necessary to uncover the correct combination of elements that will produce profound dream experiences at will.

**Keywords:** dream interpretation, lucid dreaming, narrative therapy, profound impactful dreams, behavioural change.

## TABLE OF CONTENTS

<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
1.1 INTRODUCTION .....	1
1.2 RATIONALE FOR THE CURRENT STUDY .....	2
1.3 RELEVANCE AND IMPLICATIONS .....	7
1.4 RESEARCH QUESTION AND OBJECTIVES OF THE STUDY.....	10
1.5 DEFINITIONS .....	12
<b>CHAPTER 2: LITERATURE REVIEW .....</b>	<b>15</b>
2.1 INTRODUCTION .....	15
2.2 FOUNDATIONS IN DREAM RESEARCH .....	16
2.3 THE SCIENCE OF SLEEP AND DREAMS .....	19
2.4 PSYCHOLOGY AND DREAMING .....	21
2.5 INFLUENCING DREAM CONTENT .....	23
2.6 DREAMS AND BEHAVIOURAL CHANGE MODELS .....	27
2.7 PROFOUND DREAMS.....	31
2.8 THREE DREAM ELEMENTS: EMOTION, NARRATIVE, AND REALITY .....	37
2.8.1 <i>Emotion and Dreams</i> .....	40
2.8.1.1 Neurology of Dream Emotions.....	41
2.8.1.2 Negative and Intense Emotions in Dreams.....	44
2.8.1.3 Behaviour and Emotion .....	50
2.8.1.4 Triggering Emotion.....	52
2.8.2 <i>Narratives and Dreams</i> .....	54
2.8.2.1 Narratives and Memory .....	57



2.8.2.2	Storytelling and Dreams .....	60
2.8.2.3	Narrative Uses in Therapy .....	62
2.8.3	<i>Reality and Dreams</i> .....	65
2.8.3.1	Self-Reflection, Consciousness and Volition in Dreaming .....	67
2.8.3.2	Delusion, Mental Disorder, and Dreams.....	69
2.8.3.3	Effect of Dreams on Beliefs.....	70
2.8.3.4	Dreaming as a Sensory Experience.....	71
2.8.3.5	Lucid Dreaming .....	74
2.9	CONCLUSION.....	79
<b>CHAPTER 3: METHODOLOGY .....</b>		<b>83</b>
3.1	INTRODUCTION .....	83
3.2	RESEARCH DESIGN.....	84
3.2.1	<i>Qualitative Design</i> .....	85
3.2.2	<i>Narrative Analysis Technique</i> .....	86
3.3	ROLE OF THE RESEARCHER.....	87
3.4	PARTICIPANT SELECTION .....	89
3.5	DATA COLLECTION.....	91
3.5.1	<i>Pre-Study Interviews</i> .....	93
3.5.2	<i>Dream Journals</i> .....	94
3.5.3	<i>Post Study Interviews</i> .....	95
3.6	DATA ANALYSIS .....	96
3.7	VALIDITY ISSUES .....	101
3.8	ETHICAL CONSIDERATIONS .....	103

3.9 LIMITATIONS .....	106
3.10 CONCLUSION .....	108
<b>CHAPTER 4: FINDINGS .....</b>	<b>110</b>
4.1 INTRODUCTION .....	110
4.2 PARTICIPANT BACKGROUND AND BEHAVIOURAL GOALS .....	110
4.2.1 Participant A: Paul .....	110
4.2.2 Participant B: Thomas .....	113
4.3 THEMATIC FINDINGS.....	116
4.3.1 Theme 1: Interactions with Dream Characters .....	116
4.3.1.1 Criteria .....	117
4.3.1.2 Description of Results.....	117
4.3.1.3 Subtheme: Real vs. Imagined Characters .....	118
4.3.1.4 Discussion of Real vs. Imagined Characters.....	119
4.3.1.5 Subtheme: Emotional Engagement with Dream Characters.....	122
4.3.1.6 Discussion of Emotional Engagement with Dream Characters.....	125
4.3.2 Theme 2: Waking Life Content Carried into Dreams.....	128
4.3.2.1 Criteria .....	128
4.3.2.2 Description of Results.....	128
4.3.2.3 Subtheme: Emotional Experiential Reference .....	130
4.3.2.4 Discussion of Waking Life Content.....	135
4.3.3 Theme 3: Narrative Structure .....	137
4.3.3.1 Criteria .....	137
4.3.3.2 Description of Results.....	137

4.3.3.3 Subtheme: Time .....	137
4.3.3.4 Discussion of Time .....	139
4.3.3.5 Subtheme: Narrative Perspectives .....	140
4.3.3.6 Discussion on Perspectives .....	141
4.3.3.7 Subtheme: Narrative Setting .....	142
4.3.3.8 Discussion on Narrative Setting.....	146
4.3.3.9 Transforming Dream Narratives .....	147
4.3.3.10 Discussion of Transforming Dream Narrative.....	151
<i>4.3.4 Theme 4: Sensory and Physiological Stimulus in Dreams .....</i>	<i>152</i>
4.3.4.1 Criteria .....	152
4.3.4.2 Description of Results.....	153
4.3.4.3 Discussion of Sensory and Physiological Stimulus in Dreams .....	157
<i>4.3.5 Theme 5: Lucid Dream Manifestation .....</i>	<i>160</i>
4.3.5.1 Criteria .....	160
4.3.5.2 Description of Results.....	161
4.3.5.3 Discussion of Lucid Dreaming Manifestation .....	165
<i>4.3.6 Theme 6: Behavioural Effects of Dreams .....</i>	<i>169</i>
4.3.6.1 Criteria .....	169
4.3.6.2 Description of Results.....	169
4.3.6.3 Meaning Making of Dream Content.....	173
4.3.6.4 Discussion of Behavioural Effects.....	178
4.3.6.5 Benefits of Study for the Participant: Paul .....	182
4.3.6.6 Benefits of Study for the Participant: Thomas.....	183

<b>CHAPTER 5 : SUMMARY, RECOMMENDATIONS AND CONCLUSIONS ....</b>	<b>185</b>
5.1 INTRODUCTION .....	185
5.2 SUMMARY OF FINDINGS.....	187
5.2.1 <i>Summary of Interactions with Dream Characters</i> .....	188
5.2.2 <i>Summary of Narrative Structure</i> .....	192
5.2.3 <i>Summary of Sensory and Physiological Stimulus in Dreams</i> .....	195
5.2.4 <i>Summary of Lucid Dream Manifestation</i> .....	196
5.2.5 <i>Summary of Behavioural Effects in Dreams</i> .....	205
5.3 RECOMMENDATIONS FOR FUTURE STUDIES.....	206
5.3.1 <i>Dreaming Toward the Future</i> .....	206
5.3.2 <i>Ways to Stimulate the Brain to Dream</i> .....	207
5.3.3 <i>Recommendation for Specific Behavioural Related Dream Studies</i> .....	209
5.3.4 <i>Behavioural Tools</i> .....	211
5.3.4.1 Emotional Anchors .....	212
5.3.4.2 Challenge Triggers.....	215
5.3.4.3 Transition Gateways .....	216
5.3.4.4 Emotional priming .....	218
5.3.4.5 Pre-Sleep Stimulus (Emotional Priming).....	219
5.3.5 <i>Dream Replication and Mimicking</i> .....	227
5.4 CONCLUSION.....	233
<b>REFERENCES.....</b>	<b>236</b>
<b>APPENDIX A: DREAM STUDY INFORMED CONSENT FORMS.....</b>	<b>273</b>
<b>APPENDIX B: PRE-STUDY INTERVIEW QUESTIONS.....</b>	<b>276</b>

<b>APPENDIX C: POST-METHOD INTERVIEW QUESTIONS .....</b>	<b>277</b>
<b>APPENDIX D: STUDY SOLICITATION NOTICE.....</b>	<b>278</b>
<b>APPENDIX E: PARTICIPANT DREAM JOURNALS .....</b>	<b>279</b>

**List of Tables**

Table 1. Participant A (Paul), Pre-Study Responses.....	112
Table 2. Participant A B (Thomas), Pre-Study Responses.....	115
Table 3. Post Study Interview Data.....	181
Table 4. Dream Journal Content Data.....	182

**List of Acronyms**

CBT, cognitive behavioural therapy

EEG, electroencephalogram

IAPS, International Affective Picture System

IRT, Imagery Rehearsal Treatment

LDT, Lucid Dream Therapy

MILD, Mnemonic Induction of Lucid Dreams

NLP, neurolinguistic programming

REM, rapid eye movement

PTSD, Post-Traumatic Stress Disorder

WILD, Wake Initiated Lucid Dreams

## **Chapter 1: Introduction**

### **1.1 Introduction**

Around the world and throughout history, personal accounts have been used to suggest the potential for dreams to create an altered life within the span of a single night (Bulkeley, 2008; Dement, 1999; Kuiken & Sikora, 1993; Tedlock, 1991). The ancient Greeks revered dreams for their ability to provide healing and insight (Barrett, 2001). Ancient dreamers would trek to the temple of Asclepius, where the spiritual leader would induce them, through celebration or ceremony, into a night of life-changing dreams (Kilbourne, 1987). This *temple sleep* created profound experiences and healing dreams for the participants (Kilbourne, 1987). Similarly, in ancient Egyptian and Native American cultures, people used dreams in combination with prophecy to promote life change (Bulkeley, 2008). In these and many other cultures, dreams were considered to be more than just a vision, they were a lived, embodied experience where dreamers would wake up with insight, healing, or some new self-knowledge (Barrett, 2001).

While some of these incidents may be explained by ancient people's particular beliefs (Tedlock, 1991), the accounts do suggest that induced dreams have the power to influence a person's behaviour and beliefs through the creation of a lived experience. If it is possible to discover the means by which this can be done, then inducing realistic dreams may become the basis of a relatively swift method for producing behavioural changes in individuals.

The purpose of this study was to explore through a narrative analysis method whether dreams can be used as a way to create behavioural change. Participants' dreams were studied within the frame of a lived story narrated by the participants, and as such, a



narrative design was chosen. The dream experiences of the participants were collected over a period of seven to ten days, through interviews and dream journals, with the hopes of understanding how the three elements of dreams could be used to intentionally manifest a dream that might modify participants' waking behaviours. Lucid dreaming, where the dreamer is aware she is dreaming and may have some control over the dream, was used by the participants and was chosen because it contains the three key characteristics of dreams that are being specifically explored in this study, which are narrative, emotion, and reality. These three characteristics are part of understanding how dreams become a living narrative for the participants. It is these lived narratives that may have the potential of creating profound life-altering dreams. This study used narrative analysis to see if the lived narratives (lived experiences) of dream participants have the potential for creating profound life-altering dreams. Currently, most profound dreams occur spontaneously and without intention; however, if an effective method can someday be developed for producing behavioural change through intentionally using dreams, it will have a wide array of applications ranging from personal development to therapy.

## **1.2 Rationale for the Current Study**

Night dreams have been analysed for their neurological, biological, and evolutionary functions (Hartmann, 2008; Hobson & McCarley, 1977; Hobson, Stickgold, & Pace-Schott, 1998; Revonsuo, 2000) and for their use as psychological and spiritual tools of self-awareness (Bulkeley, 1995, 2000; Freud, 1976; Hall & Van de Castle, 1966; Hill, 2004). However, there is little research on the possibility of directing or mimicking dreams to intentionally influence conditioned beliefs and behaviours. Both anecdotal stories of dreams (Bulkeley, 2008; Dement, 1999; Garfield 1988; Kuiken & Sikora, 1993;

Tedlock, 1992, 1999) and limited scientific studies (Knudson, 2006; Kuiken, Lee, Eng, & Singh, 2006) have suggested that dreaming can profoundly influence a person's waking psychology and behaviour by creating a believable life-changing experience.

Stories from certain individual dreamers related how a small percentage of their dreams were so realistic and contained such a powerful experience that the dreamer's behaviour or beliefs were altered (Dement, 1999; Tedlock 1992, 1999; Garfield 1988; Bulkeley, 2008; Kuiken & Sikora, 1993; Kuiken et al., 2006; Knudson, 2006). The changes prompted by these profound dreams seem to manifest in a variety of ways, including as mind-set changes; influence over decision-making (Bulkeley, 2008; Hill, 2004; Kuiken & Sikora, 1993; Tedlock, 1992); or, on the rarest of occasions, an impact on a person's habitual behaviour or beliefs (Dement, 1999).

It has been shown in multiple studies that dreams can be intentionally influenced or altered by several kinds of techniques including lucid dreaming, dream incubation, and waking emotions before sleep (Hobson, 2009). This brought up the consideration, that if these kinds of life-altering dreams could be intentionally manifested, rather than occurring only infrequently as a matter of chance, there may be the possibility of intentionally altering beliefs or behaviours through the use of dreams.

While it has been established that an individual's behaviours can be shaped and changed by personal experiences (Bandura, 1977; Beck, 2002; Rosner, Lyddon, & Freeman, 2004; Skinner, 1953; Thorndike, 1911), behavioural change is never as simple as just turning off an unwanted behaviour and replacing it with a new or beneficial one (Skinner, 1953). Although advances in therapeutic methods for behaviour modification have meant that different, reasonable, and successful techniques are available, such as

talk therapy, cognitive therapy, and the use of conditioning (Bandura, 1977; Beck, 2002; Rosner et al., 2004; Skinner, 1953; Thorndike, 1911), the potential for dreams to provide additional benefit to the behavioural sciences is ready to be explored.

Life-changing dreams associated with behavioural change are often referred to as ‘transforming’, ‘impactful’, ‘profound’, ‘big’, or ‘significant’ and have had varying degrees of cognitive or behavioural impact (Bulkeley, 2000; Hartman, 2008; Jung, 1976; Knudson, 2001; Kuiken et al., 2006). However, in the vast amounts of literature available today, there is currently no systematic technique that has been developed to induce life-altering dreams as a means of behavioural change. Yet, there are some known dream techniques that may provide a framework for creating these types of dream methods (Barrett, 2001; LaBerge, 1980a, 1980b). For instance, lucid dreaming offers some solid potential.

Lucid dreaming is a state in which the dreamer becomes aware that he or she is dreaming while he or she is within the dream; in some cases, the dreamer has the ability to control certain parts of the dream environment (LaBerge, 1980a; 1980b; Garfield, 1995; Waggoner, 2009). Research on lucid dreaming has shown that lucid dreamers can modify dream features such as the dream body (Waggoner, 2009), the architecture of the dream scene (Garfield, 1995; Waggoner, 2009), and interactions with dream characters (Kahan & Hobson, 2005). Researchers looking into lucid dreaming have also shown how the dreamer is able to send messages to researchers in the waking world through eye movements (LaBerge, 1980a, 1980b). The current drawbacks to lucid dreaming are the instability of the lucid dream state, the limited level of control, and the combination of both difficulty and time required to train the average person in lucid dreaming as a skill

(LaBerge & Levitan, 1993). However, lucid dreaming holds promise as a means of using dreams to achieve behaviour modification.

Recent neurological research suggests that memory and behavioural conditioning may be closely linked to the dreaming and sleep states, thus making the dream state a potentially viable location in which behavioural change may be created through dream experiences (Hobson, 2002; Stickgold, Hobson, Fosse, & Fosse, 2001; Walker et al. 2002; Wamsley & Stickgold, 2011). Surprisingly, behaviour changes may take place even if those dream experiences are not remembered by the dreamer (McClelland & Rumelhart, 1996; Smith, 1995, 1996; Smith & Whittiker, 1987; Stickgold, 2005). Suffice it to say that various sleep studies, existing dream techniques (i.e., lucid dreaming), and anecdotal stories related by dreamers all show that dreams hold promise as a behaviour modification technique. The process of actually shifting a person's behaviour through dreams may hinge on three concomitant attributes associated with dreaming that are being explored in this study; namely, the emotional power of a dream, the narrative story inside the dream, and the realism of a dream.

I realized the importance of these three characteristics of dreams as part of a literature review and identified them as major recurring themes which consistently appear in dream research. By taking advantage of these attributes of dreams, it may be possible to manifest a desired dream narrative that leads to a profound lived experience which is related to the target behaviour and subsequently makes a shift in waking life behaviour. So, within dreams, the ability may exist to effectively alter a person's waking behaviour and beliefs in an efficient and timely manner despite previous conditioning, cognitive obstructions, or past experiences.

The current study focused on the possibility that dreams can be used in a way to create behavioural change through three key attributes of the dream state: (a) the capacity of a dream to elicit high emotion, (b) the storytelling and narrative qualities of a dream, and (c) the ability of a dream to be accepted as valid and real at the moment of dream events. These qualities help place the dream in the context of a lived experience for the dreamer. Dream researchers have studied each of these qualities in isolation (Kahn & Hobson, 2004; Kahn, Pace-Schott, & Hobson, 2002; Levitan, LaBerge, DeGarcia, & Zimbardo, 1999; Neilsen, Deslauriers, & Baylor, 1991; Schredl & Doll, 1998), but as of yet, there is no publication in which the three characteristics have been studied together. In addition, no study has been done that examines whether these three qualities are associated with how a dreamer experiences his or her dream as a lived reality. Therefore, the three key elements of emotion, narrative, and reality formed the foundation of exploring dreams and waking behaviour within this study.

The technique chosen to explore the three elements of dreaming within this study was lucid dreaming, both because it has the ability to incorporate the three dream elements and for its story-like format, which fits within the narrative analysis design of this study. Lucid dreaming was used as part of this study to explore how the three elements might someday be triggered and focused toward a behavioural goal inside a dream and potentially create a profound, lived dream experience. Through the use of lucid dreaming, I attempted to explore whether the dream experiences were perceived to be sufficiently real by the participant so that the experience itself became recorded in the participant's memory as a lived experience. If the participants were able to generate actual neurological connections by successfully using their desired behaviours or beliefs

first within the dream setting and then in their waking lives, then dreams could be a viable technique that could be used as a way to facilitate behavioural change in individuals. The neurological possibilities of how a dream would affect behavioural change are discussed in detail in later chapters.

In this study, the narratives of participants' dream experiences were collected through interviews and dream journals then analysed the emerging data as it related to the three dream elements and how these dreams may be impacting the participants waking lives. It is hoped this investigation is a small step in the direction that will help future researchers with the development of a systematic method with which a profound dream or dream-like experience can be intentionally generated to influence behavioural change. It is my belief that a dream method that triggers dream elements such as emotion, narrative, and reality can be used to create a realistic lived experience that can be recorded in memory and reinforced with relevant practice. Once done, the recorded memory can be used to address a specific and targeted behavioural goal. The manner, in which this can be done, as well as the relevance and implications of using lucid dreaming to induce a profound dream through the three dream characteristics, is described in the next section.

### **1.3 Relevance and Implications**

This study is based on the belief that if it is possible to create a dream experience that can be used as a way to prompt behavioural changes in the dreamer, then the behavioural change can become indexed into a person's memory as a new way of being (Bundy, 2004; Dobson, 2009; Tachelle & Zionts, 2009). In other words, the dream experience may create a neurological and/or conscious reference for successfully

accomplishing the desired behaviour. I named this an 'experiential reference' for the purposes of the study. An experiential reference is similar to someone who learns to ride a bike for the first time. Once a person has an actual lived experience of successfully riding a bike, they know they can do it, and more importantly, their body and mind are conditioned with the knowledge of how to accomplish it again, so subsequent attempts at bike riding become easier and help develop the physical experience into a learned habitual skill. The use of an experience that was manifested in a dream may be similar, insofar as the successful use of the behaviour in the dream state may lead to subsequent conditioning, ability, and confidence in using the desired behaviour in the waking world.

A method that uses the dream state as a stage for lived experiences could potentially shorten the current therapeutic process to behavioural change, which would usually take weeks, months, or years to build into a relevant experience for the client (Bouton, 2002; Bouton, Garcia-Gutierrez, Zilski, & Moody, 2006; Bundy, 2004; Dobson, 2009; Tachelle & Zionts, 2009). Using dreams as a way to create behavioural change may also serve as a therapeutic option that provides an actionable process as a form of experiential therapy. Some of the current therapeutic methods for behavioural change, such as talk therapy, hinge upon discussions of the patient's past memories or current crisis (Bundy, 2004; Dobson, 2009). While talk therapy is extremely valuable, there are situations in which an individual has moved past the saturation point for discussion and into the need for actionable practice to create viable change in an unwanted behaviour (Dobson, 2009; Tachelle & Zionts, 2009). This is often the case when a person is dealing with behaviours that are automatically triggered or are habitual reactions to stimuli (Bundy, 2004; Dobson, 2009; Skinner, 1953).

When a person has experienced a dream-induced change in behaviour, the idea is that the person has already felt what it is like to experience the behaviour-changing moment, or alternatively, the consequences of continuing with the undesired behaviour into the future. The insightful experiences gained through dreaming can provide the impetus for real-life change. The lived experience inside the dream helps create an experiential reference point and may begin the foundation of procedural memory for a new response to the triggering stimulus (Bundy, 2004; Crocker, 1999; Datillo, 2000; Luckner & Nadler, 1997; Skinner, 1953). I believe that by understanding how an experience is recorded in the brain, consolidated into memory, and then trained into a person's behavioural patterns, there is the possibility of stopping traumatic experiences from negatively shaping a person's life by giving the individual the opportunity to redesign a behavioural reaction that may have been crippling his or her life. Dreams may be a vehicle for accomplishing this behavioural change.

Like various practices used in behaviourism, the development of dream techniques could also assist in changing behaviours that were trained into children who have endured hardship, trauma, or abuse. As mistreated children grow up, their negative experiences and reactive behaviours become familiar and habitual as adults. Behavioural research has shown that exposing individuals who have experienced a negative upbringing to the experience of a healthy upbringing scenario may allow the individual to make incremental shifts toward a more positive and fulfilling life (Kuiken & Sikora, 1993; Siegel, 2005). Thus, a lived experience, even if it is lived vicariously through the dream state, may help to resolve harmful behaviours that have been trained into children through hardship or abuse.



This study is relevant to therapists, dream researchers, and individuals, as the use of dreams as an agent for behavioural change could provide an additional method for behavioural change that is interactive, engaging, and efficient. The use of dreams could also be used by therapists and in personal development arenas. As such, this research also provided valuable information to the burgeoning field of dream research. This study represents the first step in the direction of someday creating an actual systematic method for intentionally using dreams for behavioural change, so I began this inquiry by taking the smaller step of exploring the notion that the emotion, narrative, and reality associated with dreaming may be a key to inducing a lived experience that is sufficiently powerful to prompt waking behavioural change. People are shaped by their experiences (Schwartz & Begley, 2002). However, I believe that if an experience can condition a person onto a certain path, perhaps a new, equally powerful experience may help give them a new path to follow.

#### **1.4 Research Question and Objectives of the Study**

The main focus of this study was to explore whether dreams can be used in a way that intentionally creates behavioural change. This exploration took place through reviewing the literature on existing dream methods and dream knowledge; researching potential techniques to induce dreams for behavioural change; and observing and analysing the three elements of dreaming within the participants' dream experiences and the effect those dreams had on their waking lives. The study was done by conducting an in-depth narrative analysis of the research participants' experiences as revealed through interviews and their dream journals.

While the literature on dreams suggests that dreams can be used to create

profound and life-altering behaviour and belief changes, the *intentional* use of dreams to create profound and life-altering behaviour and belief changes remains less clear. Since there are no existing sets of procedures that can be used to create a dream that will lead to a profound and life-altering behavioural change, it became necessary to use existing techniques that were the most promising in terms of being adapted for generating an intentional, profound dream experience. Lucid dreaming was used because it provided the ability for a dreamer to consciously remember their narrative exploration within their dreams. My analysis of the study took into consideration the three characteristics of profound dreams (i.e., emotion, narrative, and reality), as I determined that these three elements were most relevant to the present study. Together, these three elements provided the basis for this study's proposed exploration of dreams for behavioural change.

The central focus of this study can be expressed by the following research question: Can dreams be used to create behavioural change? In other words, is it possible to direct or mimic various dream stimuli—such as reality, emotion, and narrative—to intentionally create a profound lived experience for participants with the goal of generating a shift in waking behaviour and/or beliefs? In pursuing these questions, I developed two distinct objectives, as outlined below:

1. To explore whether the dream state can be used as a way of influencing behavioural change.
2. To explore the three dream elements of emotion, narrative, and reality within the lucid dreaming and non-lucid dreaming states.

In other words, one of the goals is to explore and understand the association between each of the initial three chosen components, including how they interact with

each other, how to intentionally trigger each element, and the effect of the dream experience on a dreamer's behaviour, either in waking life or within the dream state. The two objectives of the study focus the rich and extensive scientific research on dreaming and psychology into a relevant research study. Chapter 2 provides a literature review that contains the foundations of dream science, the biology of sleep and dreaming, the psychology of dreaming, as well as research suggesting the potential for using dreams as the basis for methods of behaviour modification. I then provided a discussion on profound and life-altering dreams and their potential use in behavioural change. Finally, information on the three main characteristics of dreams that were relevant to this study of emotion, narrative, and reality were presented. As a whole, the literature review provided the framework for this study by describing the research upon which the present study was built.

### **1.5 Definitions**

**Daydream:** A cognitive focal state in which an individual is conscious, but the individual's mind wanders onto various topics or thoughts, potentially rendering the individual unaware of surrounding activities, representing a mild form of disassociation (Hobson, 2002). The individual may at any time bring his or her focus back to the present.

**Dream Method:** For the purposes of this study, 'dream method' is used as general term for any systematic method which has been designed to alter, influence, or manipulate dreams. Currently established methods, for example, might include Imagery Rehearsal Treatment (IRT), dream incubation, lucid dreaming, and nightmare resolution

(Barrett, 2001; Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; LaBerge, 1993; Ursano, Fullerton, & McCaughey, 1994).

**Experiential Reference:** A type of lived experience, from within a dream, guided imagery session, or waking life that a participant could draw from as a reference to assist in modifying behaviour. It is the ability to draw on experiential learning that is either coded into the brain as a procedural memory or from conscious cognition of successfully completing the activity or behaviour. The experiential reference can function as a memory of a life experience.

**Life-Changing/Life-Altering Dreams:** These two terms are used interchangeably throughout this study. Although similar to profound dreams, life-changing dreams are different in that they carry a stronger influence and have a longer lasting impact on the dreamer. Life-changing dreams are those that have an impact or carry a message so meaningful to the dreamer that he or she changes some aspect of their mind-set or behaviour. These are the rare dreams that actually manifest behaviour or belief changes in the dreamer's waking life. An example in this study is that of the smoker who dreams about living through lung cancer, and then gives up smoking upon waking (Dement, 1999; Kuiken & Sikora, 1993).

**Lived Experience:** For the purposes of this study, a lived experience is an embodied experience that an individual feels both physically and mentally, which occurs to the person as a realistic event. The term is also used to describe a dream experience that the participant perceives to be life-like in its degree of realism, to the extent that it was perceived to be an experience that the individual actually lived through at the moment it occurred during the dream.

**Lucid Dream:** A night dream in which the dreamer is conscious of the fact that he or she is in a dream; some dreamers may achieve a certain level of control over the dream environment while in a lucid dream (LaBerge, 1993).

**Night/Sleeping Dream:** Dreams produced while the dreamer is in the sleep state, typically with rapid-eye movement but not exclusive to the REM states (Aserinsky & Kleitman, 1953). These dreams produce life-like imagery and experiences that are lived out in a dream state through internally generated stimuli (Hobson, 2002). Although these experiences are not real, they feel real to the dreamer at the time they occur (Kahan, 2011).

**Profound Dreams:** Dreams that impact the dreamer in a way that is relevant, meaningful, memorable, or significant. However, while these dreams may influence the dreamer, they do not always carry into the waking state by prompting a change in mind-set or behaviour, or even to influence a dreamer's decision (Kuiken & Sikora, 1993).

## **Chapter 2: Literature Review**

### **2.1 Introduction**

The aim of this study is to explore whether dreams can be used as a way of creating behavioural change. The central research question driving this study is rooted in the literature on dreaming, narrative, emotions, and behaviour that was drawn from the fields of psychology, neurology, anthropology, and sociology. This study uses both behavioural and conceptual frameworks to investigate the question of whether behavioural changes can be influenced by experiences within dreams. The main behavioural theories focus on behaviour conditioning and experiential learning. Specifically, how behaviour can be triggered by a habitual response to stimuli; how behaviour can be conditioned, retrained, extinguished, or replaced (Bandura, 1977; Skinner, 1953); and how behaviour can be influenced or changed based on experiential learning associated with a lived experience (Kolb, 1986). Conceptual frameworks were based on the following key dream theories and concepts: the continuity hypothesis (Domhoff, 1996, 2003); dreaming experienced as reality (Kahan, 2011); the effect of profound/life-altering dreams (Kuiken, 1995); and the use of lucid dreaming to intentionally alter dream content (LaBerge, 1989).

These concepts and theories were combined to provide a framework for this study that enables investigation of behaviour in dreams in three ways: (a) how the behavioural reactions occur inside the dream state and if they are a result of automatic conditioning responses from triggers as well as if there is an experiential component; (b) whether waking life reactions, emotions and stimuli from before going to sleep influence behaviour inside the dream; and (c) if waking life behaviour is affected after the dream.

Existing literature from these fields contribute to the compelling concepts of how dreams affect a person cognitively, emotionally, physically, and psychologically. Existing literature on lucid dreaming, on how dreams can be altered to ease nightmares, and on impactful dreams appears in this chapter. Finally, the literature on the roles of emotion, narrative, and perceived reality have in terms of the significance of the dream experience was discussed.

Relevant literature was located by using the online University of South Africa (UNISA) academic library to access peer-reviewed journal articles and published books. Online sources included databases for dissertations, theses, peer-reviewed studies, and journal articles, which include but are not limited to PsychARTICLES, Proquest, EBSCOHost, and PsychINFO. The journal *Dreaming* also provided a wealth of resources. Keywords used in the searches featured terms relating to the topics in this study's preliminary table of contents. The topics were searched for individually and then in various combinations with the terms 'dreams', 'dream', or 'dreaming'. In addition to specific studies on dream research, the search also included the topics of behaviour modification, neuroscience of sleep and emotions, the regulation of emotions, storytelling and narrative therapy, and various other dream-related areas.

## **2.2 Foundations in Dream Research**

The scientific side of dream research is a relatively new field of study. For thousands of years, most inquiries into dreams focused on their content or meaning (Dawood & Wyatt, 1991; Kelsey, 1968; Meier, 1966; Sanford, 1968; Tedlock, 1992; White, 1990). The origin of dream images was often relegated to either the spiritual or the fanciful (Bulkeley, 1995, 2008). It was only in the last century or so that scientific

inquiry took a more prominent position in dreaming. Before Sigmund Freud applied his theory of dreams to the unconscious, Freud was a neurobiologist who developed theories on the neurological origins of dreams in his work *Project for a Scientific Psychology* (as cited in Hobson, 1988). Even though his biological theories later proved to be incorrect, his initial instincts that dreams had a biological origin were sound. Decades later, the catalyst that brought dreams decisively into the world of science was the breakthrough discovery of rapid eye movement (REM) during sleep (Aserinsky & Kleitman, 1953).

After the discovery of REM sleep, scientists were able to electronically capture dreams by intentionally recording the dream processes as they occurred on an electroencephalogram, or EEG (Aserinsky & Kleitman, 1953; Dement & Kleitman, 1957). The electronic age broke the code of dreams and turned them into a recordable and observable biological process. At that point, dreams were no longer relegated to the sphere of spiritual and psychological interests; rather, they became a discernible function within the human body. This observation opened the possibility of altering and directing dreams in a more scientific way (Hill, 2004; LaBerge, 1993).

In the last 20 years, technological advances in sleep research and neurology have allowed scientists to look inside the brain while a dream is taking place (Hobson & McCarley, 1977; Hobson et al., 1998). This has permitted researchers to observe the specific areas of the brain that are activated by a dream (Hobson et al., 1998). These advances have provided insight into the potential functions of sleeping and dreaming, including a dream's role in consolidating long-term memory, learning, and in conditioning the instinctive physiological reaction to perceived dangers (Hill, 2004; Hobson et al., 1998; Revonsuo, 2000; Stickgold, 2005; Stickgold & Walker, 2004). Many



of these studies have generated results that have since influenced the fields of biology and psychology (Hill, 2004; Hobson et al., 1998; Stickgold, 2005; Stickgold et al., 2001; Stickgold & Walker, 2004).

Novel research techniques have made possible monumental discoveries on the way the dreaming mind functions, which in turn have resulted in the proposal of various theories on dreams, their relationship to biological systems, and their evolutionary origin (Hartmann, 2001; Revonsuo, 2000; Stickgold & Walker, 2004). The pendulum on the role of dreaming has swung from the claim that dreams have meaning to the contention that dreams are merely a biological activation of the brain that produces experiences without meaning (Crick & Mitchison, 1983; Hobson, 1999).

Hobson's research favoured the idea that dreams do not have any inherent meaning, which has been referred to by some as the Brainstem Reductionist Theory (Domhoff, 2005a, 2005b; Hobson, 2005). However, the actual function of dreams remains largely unknown. While the biological role of dreaming is not yet fully understood, the state of sleep itself is associated with multiple functions, including recording information into long-term memory, mood stabilization, experience archiving, cellular rejuvenation, and preparing for the new day's brain activity (Stickgold, 2005; Stickgold & Walker, 2004; Wamsley & Stickgold, 2011). In her book *Crisis Dreaming*, sleep researcher Rosalind Cartwright referred to these functions as 'review, revise, rehearse, and repair' (Cartwright & Lamberg, 1993, p. 6).

The science of sleep and dreaming are inextricable because the two have potentially interconnected roles in consolidating long-term memory and entraining behavioural and cognitive reactions (Stickgold, 2005; Stickgold & Walker, 2004;

Stickgold et al., 2001; Walker et al., 2002; Wamsley & Stickgold, 2011). Researchers must have a clear understanding of sleep and its relationship to dreaming before they can hope to manipulate dreams for therapeutic purposes.

### **2.3 The Science of Sleep and Dreams**

The science of sleep and dreams has advanced considerably in recent years. For example, it has been discovered that sleep allows neurons time to rest, recalibrate, and offload the day's information without having to simultaneously take in new data (Tononi & Cirelli, 2006). Researchers have suggested that the brain may reach a point of saturation that inhibits further learning and that sleep allows the brain to offload and record data into long-term memory while refreshing and restoring brain cells for the new day's learning (Tononi & Cirelli, 2006). This process of rejuvenation allows the data stored in short-term memory to be transferred into long-term memory (Lee & Wilson, 2002) while simultaneously clearing neurons of old information and refreshing a clean database for the new day (Tononi & Cirelli, 2006).

Sleep assists in a person's ability to regulate mood while awake; when sleep is disturbed, there is effectively an imbalance (Kramer, 1993; Nielsen, 2000; Nielsen & Yeshiva, 2007). Sleep has been shown to be an essential physiological process, as a disturbed or inadequate state of sleep can contribute to disease (Zager, Andersen, Ruiz, Antunes, & Tufik, 2007), mood difficulties (Kramer, 1993; Nielsen & Yeshiva, 2007), mental hindrances or disorientation (Nielsen, 2000), and physical changes or abnormalities including moderate to severe weight fluctuations (Cappuccio et al., 2008). The sleep state is critical not only for the formation of new memory, but it also has regenerative properties and contributes to strengthening the immune system (Stickgold

2005; Stickgold et al., 2001; Walker et al., 2002; Wamsley & Stickgold, 2011). In addition to all of these roles, there is also a possible connection between the functions of sleep and dreams, particularly with respect to consolidating long-term memory and rehearsing or recording procedural memories which can affect automatic behavioural responses (Stickgold 2005; Walker et al., 2002; Wamsley, Tucker, Payne, Benavides, & Stickgold, 2010).

Although scientists do not fully understand the biological or evolutionary function of dreams, this has not hindered the ability of humans to use dreams in a multitude of beneficial ways (Barrett, 2001; Cartwright & Lamberg, 1993; Garfield, 1995; Hill, 2004). As the understanding of the neurological and biological mechanisms behind dreaming grows, researchers may find that some of the psychological impacts of dreaming, once thought to be the primary purpose of dreaming (e.g., the belief that dreams are the messengers of the spiritual or unconscious) may actually be a secondary gain of dreaming or an adapted use in human cognitive inquiry.

However, even if the psychological benefits of dreaming are proven to be a secondary gain, the benefits have been repeatedly found to be significant (Barrett, 2001; Cartwright & Lamberg, 1993; Garfield, 1995; Hill, 2004). The ability to reflect on waking concerns, behaviours, and cognitive habits that consistently show up in dreams brings awareness, attention, and subsequently, the possibility for change to these habits (Hill, 2004; Ullman & Zimmerman, 1979; Van de Castle, 1994). Thus, the increase in the scientific understanding of the origin and biological mechanisms behind dreams has not changed the age-old interest in using dreams to assist our waking lives. Instead, it has helped psychologists and other dream enthusiasts to use dreams more resourcefully

(Barrett, 2001; Cartwright & Lamberg, 1993; Garfield, 1995; Hill, 2004; Ullman & Zimmerman, 1979; Van de Castle, 1994).

## **2.4 Psychology and Dreaming**

Dreams have long been an important subject in the field of psychology (Barrett, 2001; Freud, 1976; Hill, 2004; Krippner et al., 2002). Researchers have explored the creative and therapeutic uses of dreams, and therapists have guided patients through the practice of learning and growing from their dreams (Barrett, 2001; Hill, 2004; Krippner et al., 2002). However, while the neuroscience of dreaming has made significant advances, the available research regarding the psychological basis of dreams continues to lean toward a retrospective analysis of dreams as past events, such as those seen in dream interpretation or therapies using waking life reflection analysis (Domhoff, 1996, 2003; Hill, 2004). For example, waking life reflection analysis is based on the continuity hypothesis, which posits that a person's recent or habitual emotional and thought patterns are carried into his or her dreams (Domhoff, 1996; Hall & Van de Castle, 1966).

Researchers have found that dreams can indeed reveal the focus of attention and emotions of an individual (Domhoff, 2003; Winget, Kramer, & Whitman, 1972). In content analysis, a researcher takes the contents of an individual's dreams and carefully details, counts, and codes a vast array of dream themes, emotions, characters, setting, objects, and other dream content to determine the number of times those elements present themselves in the dream and how each category pertains to the dreamer's waking life (Hall & Van de Castle, 1966). The use of content analysis as a tool for research has shown fairly consistent results that support the continuity hypothesis (Domhoff, 1996; Hall & Van de Castle, 1966). These studies have been valuable as they have allowed the

compilation of a database of thousands of dreams in one location; provided information to decode both short-term and long-term relationships between waking and dreaming emotions, actions, and cognitive focus across a dreamer's lifetime; and have provided a new framework in which dreams can be quantitatively studied (Domhoff, 1996; Hall & Van de Castle, 1966). More importantly, this previous research was able to show how waking thoughts and emotions are connected to dream thoughts and emotions.

While prior research has focused on the emotional and cognitive similarities between the waking life and dream life, dream interpretation is a technique that is used to decipher the meaning of dreams (Garfield, 1988; Hill, 2004). In Western culture, dream interpretation tends to promote the pairing of a dream symbol with a personally significant meaning or feeling. This awareness is thought to give a person insight, understanding, or self-knowledge about a situation, event, emotion, or another person (Hill, 2004; Garfield, 1988). However, this is only one form of dream interpretation. Dream interpretation techniques span throughout many academic fields and extend to almost every culture around the world (Bulkeley, 2001; Meier, 1966; Moss, 2009; Tedlock, 1992; White 1990). A typical form of dream interpretation in the past was for the dreamer to consult with an 'expert', typically a therapist, shaman, dream practitioner, or spiritual leader who *told* the dreamer the meaning of the dream based on cultural, social, personal, spiritual, or historical beliefs (Bulkeley, 2001, 2008; Hill, 2004; Meier, 1966; Tedlock, 1992, 1999; White, 1990).

In recent times, the focus in both Western culture and academic circles, has been to shift the role of the expert to the dreamer, with the therapist acting mostly as a knowledgeable guide (Barrett, 2001; Hill, 1996). This is done under the premise that the

dreamer is the person who best knows the meaning of her dream images and feelings, and that she may only need guidance in interpreting the dream. This is especially true in several psychological fields, where the dreamer's ability to associate meaning is an indication of her waking cognitive focus regardless of the true intent of the dream images (Hill, 1996, 2004).

With this heavy focus on the meaning of dreams that have already occurred, there has been limited research in the therapeutic field on how to alter or influence *future* dreams (Barrett, 2001; Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; LaBerge, 1993; Ursano et al., 1994). In fact, most of the research on changing future dreams has originated from fields such as lucid dreaming (LaBerge, 1993) or out of therapeutic necessity, such as in nightmare resolution or Post-Traumatic Stress Disorder (PTSD) treatments (Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; Ursano et al., 1994). Only a handful of these methods have been used to activate dreaming as an intentional personality or behaviour modifier (LaBerge, 1993, 2004; Germain & Nielsen, 2003).

## **2.5 Influencing Dream Content**

Studies on dreaming have delved into whether the content of dreams can be influenced using sensory stimulation (Hoss, 2005), controlled with lucid dreaming (LaBerge, 1985; Waggoner, 2009), or manifested using dream incubation (Barrett, 1993, 2001). The primary mechanisms currently used to influence, control, and/or manipulate dreams include nightmare resolution, lucid dreaming, and dream incubation. The rare behavioural changes associated with these techniques tend to emerge from insights or emotional saliency from prior dream experiences rather than from attempts at altering, influencing, or manipulating new dreams as a way to achieve behaviour modification

(Krippner et al., 2002; Rosner et al., 2004).

Of the three techniques used to modify dreams, lucid dreaming has proven to be the most successful way to intentionally alter the content of dreams as they occur (Kahn & Hobson, 2005; LaBerge, 2004). Research into lucid dreaming has found that it is possible to manipulate, adapt, and influence dreaming content, characters, and the dream environment (LaBerge, 1980a, 1993, 1996). Methods of lucid dreaming include (a) manipulating, manoeuvring, and transforming the 'material' dream world as well as the dream body; (b) allowing the dreamer the ability to transition through time and space (LaBerge, 2004); (c) intentionally interacting with and influencing dream characters (Kahn & Hobson, 2005); and (d) manifesting the answers to problems or complex questions in the dream state (Garfield, 1988). Interestingly, lucid dreaming has not been developed specifically for behaviour modification, despite its potential for such usage.

Perhaps the best example of attempts to intentionally modify dreams to achieve behaviour modification can be found in the treatment of anxiety issues, including the extinction of phobias and the management of traumatically recurring nightmares in PTSD patients (Germain & Nielsen, 2003). Nightmare resolution treatments use various methods to alter the patient's waking life experiences after nightmares occur (Kothe & Pietrowsky, 2001), with the goal being to change future dream content or the dreamer's relationship to dream content by extinguishing the negative emotions, triggers, and associated behavioural reactions that occur after a nightmare has taken place. Negative emotions and traumatic dream images are diffused using methods such as completing, confronting, and developing mastery over the dream stories or dream characters (Hartmann, 2008; Hill, 2004). While the primary goal of this approach is to encourage

positive experiences and heal trauma, there is also some focus on changing future dreams to keep negative experiences from recurring or to prevent the triggering of traumatic emotions (Hill, 2004; Kothe & Pietrowsky, 2001).

Although the emphasis of nightmare resolution is one of symptom relief, this existing body of work shows that dream content can respond to certain changes in thought, waking life simulations, and dream rehearsal. Two methods that have had reasonable success in treating chronic nightmares are Imagery Rehearsal Treatment (IRT) and Lucid Dream Therapy (LDT) (Germain & Nielsen, 2003; Krakow, Hollifield, & Johnston, 2001; Krakow, Kellner, Neidhardt, Pathak & Lambert, 1993; Spoonmaker & van de Bout & Meijer, 2003; Zadra & Phil, 1997).

In IRT, the patient imagines ways to change her nightmares when awake, with the belief that what is done in the waking world carries over to the dream state (Krakow et al., 1993; Krakow et al., 2001). LDT is also actively used as a treatment for nightmare sufferers. In LDT, the patient trains in lucid dreaming through using daily exercises to strengthen her ability to identify and control the dream state. The patient then uses the lucid state to alter her nightmare and storyline (Spoonmaker, et al. 2003). Some patients have even experienced a reduction in nightmares *without* achieving lucid dreaming, which may indicate that the rehearsal training in LDT is similar to the rehearsal effects of IRT therapy (Spoonmaker, et al., 2003; Zadra & Phil, 1997).

The technique of dream incubation has also proven effective in enabling the dreamer to use self-suggestion, prospective memory, and rehearsal to influence his or her dream content (Barrett, 1993, 2001). In dream incubation, dreamers focus on a single topic, question, or theme and hold their focus on that intention until they fall asleep



(Barrett, 1993, 2001). With practice, dreamers can successfully dream about their intended topics (Barrett, 1993, 2001). Although dream incubation only produces a generalized experience in the dream state, it has shown some promising results in helping people accomplish spiritual, creative, and personal goals (Barrett, 1993, 2001). Unfortunately, dream incubation does not offer the targeted ability to create a complex set of events, emotions, or narration inside the dream state, nor has it been shown to consistently and predictably create a targeted experience for behavioural change.

Dream incubation researchers have found that on average, a child takes five weeks to incubate a given dream topic (Wile, 1934), while only a small percentage of young adults experienced some impact on their dreams with dream incubation (Barrett, 1993). Barrett found that 50% of people believed they had a dream related to the problem for which they were incubating a solution, but independent judges found this percentage to be smaller (Barrett, 1993, 2001). Therefore, while dreams can be influenced with conscious intention, the ability to manifest the intention within a dream may take either an extended period of time or may only be vaguely reflective of the original intention. The success rate is also relatively low (Barrett, 1993). Dream incubation for problem-solving has also been shown to have a low rate of success. For example, Dement (1974) performed a study with 500 participants who tried to solve a brainteaser in their dream. Out of 1,148 dreams, only 87 dreams were on topic, but only seven dreams showed solutions to the brainteaser. Despite these limitations, research into dream incubation suggests that the actions an individual performs (i.e., focusing on an idea) before going to sleep can significantly impact their dream content (Gackenbach, 2006; Hall & Van de Castle, 1966; Stickgold & Walker, 2005).

The collective body of research into lucid dreaming, nightmare resolution, and dream incubation suggests that dream content can be intentionally altered by having the dreamer activate desired dream content or emotions through exercises, rehearsal, and discussions before sleeping. Given this body of research, I believe that, through some combination of these various dream methods (incubation, lucid dreaming, and nightmare resolution) added to existing therapeutic methods for behavioural change, it may be possible to develop a viable technique for intentionally directing and systematically stimulating the dream experience. While dream incubation and nightmare resolution provide valuable information, for the purposes of this study, lucid dreaming was the primary tool used to explore the three dream elements as it provided a level of control and observation by the dreamer over the dream content.

## **2.6 Dreams and the Behavioural Change Model**

The possibility of changing one's behaviour has been a point of interest in many different fields of study, from therapy and psychology to philosophy and metaphysics (Bandura, 1977; Bundy, 2004; Datillo, 2000; Luckner & Nadler, 1997; Polster & Polster, 1973; Skinner, 1953). Some behaviour models hold that humans are the product of the many environmental experiences they encounter from infancy to adulthood (Bandura, 1977; Bundy, 2004; Skinner, 1953). In other words, some behaviour models suggest that humans are a conditioned response to stimuli. While it is the case that an individual may experience an automatic response to a certain stimuli or triggers, it is often necessary to do more than simply interrupt or retrain the triggered response to effect meaningful behavioural change (O'Donohue & Ferguson, 2006). Lasting behavioural change requires conscious thought when an undesired behaviour is triggered (Rosner et al., 2004). It is

only when a person takes an active part in the process of changing her behaviour by using her mental thought process as a precursor tool for behavioural change (Dobson, 2009) that lasting change can occur. These behavioural changes are often based on the notion that feelings and thoughts contribute to a person's actions (Bundy, 2004).

Experiential learning is also beginning to break ground as a systematic method for use in behavioural change and learning (Crocker, 1999; Datillo, 2000; Kolb, 1984; Luckner, & Nadler, 1997; Polster & Polster, 1973). Experiential learning consists of learning through a physically connected experience; for example, by a procedural method such as a hands-on activity or by a full sensory life experience where an individual lives out an episodic event (Crocker, 1999; Datillo, 2000; Kolb, 1984; Luckner, & Nadler, 1997; Polster & Polster, 1973).

There are several categories of experiential approaches in the scientific and academic fields. One approach to experiential learning developed by David Kolb (1984) is used primarily in the field of education, although it has application in other fields as well. According to Kolb, experiential learning focuses on steps such as watching, thinking, feeling, and doing; these procedural steps are systemized to help accelerate learning in an educational environment (1984). While Kolb's method is primarily applied to the educational domain, it has elements that have wide application, as much of the focus in Kolb's model is on hands-on procedural memory, which is targeted more toward 'learning by doing'. Areas such as personal development, athletics, and even navigating personal relationships often depend on approaching a situation that one faces through the 'learning by doing' technique, insofar as this technique is often required in any unique situation (Austin, 1999; Datillo, 2000; Luckner, & Nadler, 1997; Polster, & Polster,

1973).

While it is the case that strong episodic events can shape a person's reactions to certain triggers (Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; Skinner, 1953; Ursano et al., 1994), experiential learning allows an individual to cognitively intervene in or frame their lived experience to fit their desired goals. For example, recreation and adventure can give people a lived experience which is intentionally and carefully created according to their personal goals (Austin, 1999; Datillo, 2000; Luckner & Nadler, 1997).

Experiential learning alone will not cause changes in personality; instead, changes to the brain that are predicated on experiences must also take place. Scientists used to believe that the wiring of the brain was fixed (Karni et al., 1998); however, current research suggests that the brain is plastic and has a tremendous ability to heal, change, and adapt (Karni et al., 1998; Kolb & Whishaw 1998). Brain plasticity is the ability of the brain to restructure itself, and this phenomenon can be observed in behaviour pattern changes resulting from lived experiences and mental shifts brought about either via reframing responses to stimuli or via 'learning by doing' (Karni et al., 1998; Kolb & Whishaw 1998; Skinner, 1953).

Neurological changes that take place due to behavioural changes occur at different rates according to the intensity of emotion, the novelty of the experience, and other factors (Karni et al., 1998). As such, it can be argued that any experiential learning that combines multiple sensory data and multiple stimuli in lived experiences increases the likelihood and pace at which the brain permanently records the memory of an experience. These changes can also occur with steady rehearsal and practice. Researchers have found that with just 10 to 20 minutes of practice each day, the motor cortex

becomes reshaped in a matter of weeks (Karni et al., 1998). However, in situations where the stimulus is sufficiently strong, the motor cortex can change almost instantly (Cirelli, 2007). This is because multiple neurons are engaged and firing simultaneously to record the single intense experience (Cirelli, 2007; Karni et al., 1998; Kolb & Whishaw, 1998). While bonds among neurons can be formed through high levels of cognition, emotion, and experience during the day, they can also be formed in dream experiences during sleep (Cirelli, 2007). This suggests that a dream experience which is sufficiently powerful enough from an emotive and experiential standpoint may have a chance of promoting behavioural changes in the waking world if multiple sensory, emotional, and mental synapses are triggered simultaneously in the dream.

Dreaming has various combinations of multisensory processes that create associative memories (Hobson, Pace-Schott, & Stickgold, 2000; Kahan, 2011). Additionally, because of the suspension of self-reflection in dreaming, people's biographical memories are virtually erased for those fleeting moments inside a dream (Kahn & Gover, 2010; Kozmova, 2012). This means that dreamers often believe themselves to truly be living the life or event experienced inside the dream (Hobson et al., 2000; Kahan, 2011; Kahn & Gover, 2010; Kahan & LaBerge, 1994, 2011; Kozmova, 2012). In a dream, past habitual behaviours are not absolute and need not have a bearing on the dreamer's experience (Kahan & LaBerge, 1994, 2011). Dreamers suddenly have the ability to experience themselves achieving a new behaviour or experience without as much hindrance (Kahan & LaBerge, 1994, 2011). It may therefore be the case that a profound dream experience may assist the dreamer to engage in an accelerated intentional shift in thinking, emotion, or behaviour, provided that the power of the dream is vivid

enough to alter neurological wiring associated with a targeted behaviour. Thus, a profound dream experience may be a form of experiential learning, if the power of the experience in the profound dream is sufficient to affect waking behaviours.

In the present study, the primary focus on whether dreams can be used as a way to create behavioural change is based on the principle that lasting behavioural change is predicated on a perceived lived experience and its associated emotional reaction. However, it may also be the case that a significant cognitive element is necessary in order to create a lasting behavioural change in the waking world. Thus, at the core of this study is the notion that a person's behaviour can be modified by a dream experience in which the person actively participates. Based on these experiential learning studies, prior research on trauma, and the observed behavioural changes in others, while knowledge creates awareness, experience creates change, or as Schwartz and Begley (2002) note, 'the brain's response to messages from its environment is shaped by its experiences, experiences not only during gestation and infancy... but experiences throughout life. The life we live, in other words, shapes the brain we develop' (p. 179). By providing an individual with the opportunity to experience a new, behaviourally-modified dream experience, the individual may change prior behaviour patterns into new, more empowering ones (Crocker, 1999; Datillo, 2000; Kolb, 1984; Luckner & Nadler, 1997; Polster & Polster, 1973).

## **2.7 Profound Dreams**

Profound and life-altering dreams are dreams that carry into and influence an individual's waking life. For the purposes of this study, a dream that produces an experience which influences, alters, or otherwise affects an existing behaviour, belief, or

habitual reaction is referred to as a profound dream. These profound dreams have been referred to in a variety of ways and carry different levels of intensity. Profound dreams have been referred to by researchers and dreamers using various terms that include, but are not limited to, *impactful*, *big*, *significant* and *extraordinary* (Barrett, 2001; Bogzaran, 2003; Bulkeley, 2000; Domhoff & Schneider, 2008; Garfield, 1979; Krippner et al., 2002; Kuiken & Sikora, 1993; Tedlock, 1999).

However, even the same term often has different meanings for different researchers. For example, extraordinary dreams for some researchers are those that endow the dreamer with extrasensory abilities, such as telepathy and clairvoyance, or that include physically enhanced experiences (such as out-of-body experiences or lucid dreams) but they could also be personally or spiritually significant experiences (such as a connection to higher powers) (Bulkeley, 2000; Kuiken & Sikora, 1993; Tedlock, 1999).

Extraordinary dreams are also defined as dreams that enhance creativity or problem-solving abilities (Barrett, 2001; Bogzaran, 2003; Garfield, 1979; Krippner et al., 2002). Another term for a profound dream is a memorable dream. Domhoff (2003) described memorable dreams as those generating an emotional, religious, personal, or spiritual significance for the dreamer that provides insight or spiritual or creative impact in their waking lives. Krippner et al. (2002) called these types of dreams extraordinary dreams, while Hartmann (2008) described 'big dreams' as those that are significant to the dreamer. According to Hartmann (2008), these types of profound dreams are formed by a vivid central image that tends to remain stable in the dream and is connected to a high level of emotion. These types of profound dreams can be positive or negative, and they can embody abuse, trauma, transformative, and/or artistic themes (Hartmann, 2008).

Among the above-mentioned researchers, it is research Don Kuiken who has made the most systematic attempt to study, understand, and organize profound dream experiences and categorize them using a set of well-defined terms (Busink & Kuiken, 1996). Busink and Kuiken (1996) pointed out that there was a distinct lack of vocabulary necessary for the research community to better define and standardize the elements of profound dreams. The researchers attempted to address this problem by classifying profound dreams into three categories: anxiety dreams, existential dreams, and transcendent dreams (Busink & Kuiken, 1996).

Anxiety dreams are those that induce a feeling of threat, upset, or trauma to the physical or emotional equilibrium of the dreamer (Busink & Kuiken, 1996). While this includes the class of dreams that are typically considered to be nightmares, anxiety dreams can occur at varying levels of intensity and do not necessarily have to reach the heightened emotional state associated with nightmares. That said, nightmares are generally included in the category of anxiety dreams (Hopper, 2007).

Although nightmares can result in profound life-altering epiphanies (Dement, 1999), these epiphanies generally occur in such a small percentage of cases that, regardless of the associated potential, the intentional use of anxiety dreams can cause significantly more harm than benefit (Hopper, 2007; Levin, Fireman, & Nielsen, 2010). Intense anxiety dreams, nightmares, and high-emotion states can cause an individual to wake up, presumably to cease the escalation of trauma that is occurring within the dream (Levin & Nielsen, 2007). The awakening also prevents the resolution or conclusion of the dream, meaning that these dreams have a tendency to cause upsetting emotions to linger long after waking (Busink & Kuiken, 1996).



Furthermore, working with past trauma or upsetting content could produce harm to the participants by activating memories or emotional states requiring professional interventions (Kramer, 2007). Significant or traumatic events can have a considerable impact on dream content (Hartmann, 1999). These events can last for extended periods of time, spanning years after the incident (Kramer, 2007). The relevance and importance of this information to this study is that, because of the potential trauma and emotional upset that anxiety dreams can produce, there is also the ethical consideration of protecting participants from potential harm. Therefore, for the purposes of this study, the participants only attempted to induce positive experiences and I took precautions to avoid triggering negative emotions in participants, which I explain in detail in later sections.

Of Busink and Kuiken's (1996) three dream categories (anxiety, existential, and transcendent), anxiety dreams are the most strongly associated with negative emotions such as fear and discomfort. In contrast, existential dreams are associated with the highest degree of self-reflection, while transcendent dreams are associated with spiritual transformation (Busink & Kuiken, 1996). Busink and Kuiken (1996) defined existential dreams as leading to personal insight through self-reflection, a process which may culminate in a waking-life awareness for the dreamer and possibly the discovery of a personal truth that would have otherwise gone unnoticed or been ignored. Transcendental dreams are associated with spiritual transformation and meditative or mindful awareness (Kuiken et al., 2006). While anxiety dreams focus on perceived threats or upsets occurring outside the dreamer, where 'fear and harm-avoidance are dominant' (Kuiken et al., 2006, p.259), existential dreams focus on internal experiences, and transcendental dreams use spiritually manifested feelings of 'awe and magical accomplishment' as their

focal themes (Kuiken et al., 2006, p.259).

It should be noted that Kuiken's classification of profound dreams is not exhaustive within the literature (Kuiken et al., 2006), although his taxonomy does encompass most terms used to describe profound dreams. A general survey of research studies, dream reports, and cultural references indicate that the description of profound dreams can differ according to cultural beliefs and practices (Bulkeley, 1995, 2001, 2008; Tedlock, 1991, 1992, 1999). The following are descriptions of profound dreams that are associated with the personal transformation of the dreamer:

- Rites of passage—overcoming challenge;
- Vision quests—providing life direction;
- Insights and change—altering a course of behaviour, belief, or mind-set;
- Spiritual—a transcendental experience, spiritual connection, or epiphany;
- Contradictory action—becoming or acting as a different person in the dreamscape;
- Creative inspiration—exploring, experiencing, or creating an artistic work or solving a problem;
- Dream journey—a physical or emotional dream journey experience; and
- Healing—physically or mentally healing or easing symptoms of a condition within the body or mind (Bulkeley, 1995, 2001, 2008; Kuiken & Sikora, 1993; Busink & Kuiken, 1996; Tedlock, 1991, 1992, 1999).

Dreams with these themes tend to carry over into waking life, insofar as they are said to provide insight and healing that stay with a person after the conclusion of the dream (Busink & Kuiken, 1996; Kuiken & Sikora, 1993). Also, the biological mechanisms at play to activate the dream neurologically are similar for all individuals, so creating a biologically- or neurologically-based system of manifesting or influencing dreams could potentially be effective in all individuals. However, the effect of these

dreams on waking actions, thoughts, and emotions varies from one individual to another. If two people were to have an identical dream, its impact would differ substantially between the two because of the dreamer's emotions, backgrounds, beliefs, their individual interpretations, and the unique meanings each person gives the dream (Hill, 2004). Furthermore, memorable dreams do not automatically equate to an understanding of the dream's content, and it is not until the dream is thought about or analysed in waking consciousness that it acquires meaning (Knudson, 2001).

It is important to note that a profound dream does not equate to a *need* to find meaning to the dream. In other words, a dreamer does not have to analyse the dream for it to be meaningful. The dream can be a worthwhile experience in and of itself, due to the lived experience, emotions, and spiritual connections that it generates inside the experiences of the dreamer. While interpretation of a dream may enhance, change, or add to the experience, the dream itself is actually a complete and independent experience.

This section has defined the concept of impactful or profound dreams, with particular attention to the influential work of Don Kuiken on the subject. This research is relevant to the present study because of my investigation into the possibility of using profound dreams to trigger a behavioural change in participants that is based upon three key characteristics of dreams, as identified within the dream literature: the power of dreams to elicit emotion, the narrative quality of dreams, and the seeming reality of the dream state. The next section contains a survey of the literature that illustrates each of these three qualities of dreams.

## 2.8 Three Dream Elements: Emotion, Narrative, and Reality

Three major characteristics of dreams that are of central importance to this study are the emotional, narrative, and realistic aspects of a dream. These three elements are relevant for two reasons. The first reason is because of the wealth of available scientific research that includes the relationship and interplay of dreams with emotion, narrative, and perceived reality. The second reason is because of a general observation in the literature that people who relate a dream story express their experiences beginning with some variation of the sentence, ‘The dream was so real that I felt...’. This general statement can be broken down into the three key elements as follows:

- ‘The dream’ (i.e., the story or experience, which is illustrative of the narrative element);
- ‘Was so real’ (i.e., the perceived reality of the dream, which forms the reality element); and
- ‘That I felt’ (i.e., feelings associated with the dream, which forms the emotional element).

The literature provides ample evidence of the significant relationship between dreams and emotion, how dreams are perceived as real by the dreamer, and how the dreamer relates narratives which provide a reference framework into which emotion and realism fall (Kahn & Hobson, 2004; Kahn et al., 2002; Levitan et al., 1999; Neilsen et al., 1991; Schredl & Doll, 1998). Thus, all three of these dream elements are clearly significant contributors to the total impact that dream content may potentially have on the dreamer.

Further justification for this study’s emphasis on the elements of emotion,

narrative, and reality within dreams is found in the work of Don Kuiken. In a 1995 study, Kuiken also identified the same three elements as impacting the dream experience. As Kuiken (1995) notes (emphasis added),

It is useful to consider three separate aspects of dream experience, each mediated by a different component of dream psychobiology. First, in impactful dreams generally, *narrative* discontinuities mark mnemonic transformations that present progressively non-prototypic personal meanings. Second, in impactful dreams generally, a heightened sense of ‘*reality*’ emerges from accentuation of the dreamer’s felt engagement in vividly present dream situations. Third, in existential dreams particularly, the disruption of smooth engagement in dream actions initiates the realization of *feelings* that are tinged with sadness and that uproot superficiality. The interplay of these aspects of dream experience is required to understand how existential dreams deepen self-perception. (p. 1)

Dream researcher Bulkeley (2008) came to a very similar conclusion concerning the three elements of emotion, narrative, and reality; however, he replaced narrative with dream imagery when stating that ‘a growing number of researchers are investigating dreams that make an especially strong and lasting impression on an individual by virtue of their *dramatic imagery, powerful emotions, and/or vivid sense of realism*’ (Bulkeley, 2008, p. 10, emphasis original). Thus, there is consensus among dream researchers that the elements of emotion, narrative, and reality are crucial elements of profound dreams.

It should be noted here that dreaming is a multi-faceted phenomenon. For instance, a dream that has only one element in isolation, such as emotion, would not generally rise to the level of a profound dream. Emotion without a narrative or episodic

context would be an emotion without any association to an event or meaning. The same is true for the other two components; reality without any emotion would be like looking at a picture of a stranger's life, as there would likely be little meaning or interest. The same holds for narrative, as a dream that is devoid of feeling and a sense of reality is only a story. The interplay of the various dream elements is needed to create a full and profound, embodied experience.

I believe that the components of emotion, narrative, and reality intertwine to form a gateway through which a profound dream experience can potentially occur. Since dream experiences are recorded, activated, and retrieved through the association of multiple senses and memory systems in the dream state, triggering and learning to trigger these systems may also have a compounding effect to assist in activating the dream state at the desired intensity and with the desired content (Hosbon, 2002; Stickgold, 2005; Stickgold et al., 2001). To date, no locatable research has ventured into this area. In other words, the goal is to understand the association between each of the initial three chosen components, how they interact with each other, and how to intentionally trigger each element.

There are times when using one of these elements as an individual component can be beneficial outside of the dream state as a simplified way to interpret or work with a dream. The examination of each element in isolation is often used in the field of psychology to integrate emotional healing or cultivate personal understanding or meaning (Bulkeley, 2008; Hill, 2004). However, for the purpose of this study, which is to intentionally activate a full dream experience to induce behaviour modification, reducing the elements to one individual component is not likely to promote a profound dream.

Thus the next section identifies existing research on each of the three elements and then synthesizes the existing information on each element to form a basic method in which all three elements can be used together to generate a profound dream experience.

### **2.8.1 Emotion and Dreams**

The power that emotion has to influence an individual's actions and behaviours has been studied in multiple contexts. Emotion can influence a person's decision making (Bechara, 2004; Bechara, Damasio, & Damasio, 2000; De Melo, Carnevale, Read, Antos & Gratch, 2012; Sanfey, Rilling, Aronson, Nystrom, & Cohen, 2003; Schwarz, 2000), impulsive reactions (Berkowitz & Buck, 1967; Lee & Yi, 2008; Schreiber, Grant, & Odlaug, 2012), self-esteem (Brown & Dutton, 1995; Brown & Marshall, 2001; Harber, 2005; Raty & Gustafsson, 2006; Reese, Bird, & Trip, 2007), social interactions (Lopes, Salovey, Côté, & Beers, 2005), relationships (Fehr & Harasymchuk, 2005; Gross & John, 2003), and other areas of a person's life (Diener, Oishi, & Lucas, 2003; Kuppens, Realo, & Diener, 2008). However, the influence of emotion is not restricted to the waking life. In certain instances, emotions generated by dreams can have an impact on the individual. The dream state produces a high level of emotion (Levin, 1994; Davis & Whalen, 2001; Hartmann, Zborowski, & Kunzendorf, 2001; Neilsen et al., 1991; Schredl & Doll, 1998) that may be a useful tool for behavioural change. Emotions in dreams are amplified in their intensity and can reveal a person's prior mood or influence his or her subsequent moods (Punamaki, 1999). Some studies have revealed that heightened emotions also play a part in the development of compulsive behaviours (Cyders & Smith, 2008; Wood, 1998), as well as in the development of aversions to certain situations, behaviours, or experiences (Druckman & McDermott, 2008; Grupe & Nitschke, 2011).

Although these studies explore the effects of traumatic emotions (Druckman & McDermott, 2008; Ehring & Quack, 2010; Mellman & Pigeon, 2005; Sloan, 2003), this line of research supports the position that emotions have the ability to intervene, influence, or otherwise change behaviour. This, combined with the substantial presence of emotion in dreaming, makes emotion a valuable component in the methods for this study. The question is, how do emotions form and how can they be triggered within the dream state?

The following sections provide the context for understanding the role of emotion in dreams and for using emotion as an intentional tool in behaviour modification. The next section begins with the neurological origins of emotion in dreams and the similarity and differences between waking and dreaming emotions. This helps explain the significant role that emotion plays in a dream experience. Then, a detailed analysis of the current research regarding the effects of both positive and negative dreams follows. This information assisted in designing the study to only induce positive experiences when possible. From there, the focus leads into the existing methods with which emotions can be triggered and a discussion of the types of methods that I explored for this particular study.

### ***2.8.1.1 Neurology of Dream Emotions***

The emotional component of dreams has a neurological basis. Waking and dreaming emotions may share the same neurological roots, even though their intensity and their physiological origins are not exactly the same (Nielsen et al., 1991). In some instances, emotions in the waking and dreaming states differ dramatically, especially when it comes to a person's ability to intervene in a triggered emotion. For instance,



while emotion is generated in the limbic regions (Derryberry & Tucker, 1992) and enhanced in the amygdala (Phelps, 2006) in both waking and dreaming states (Neilsen et al., 1991), some of the neurological activities associated with emotion are different in the dreaming state, especially with respect to the mediation, which normally occurs inside the prefrontal cortex (Lang, Bradley, & Cuthbert, 1992).

The neurological aspects of emotions are multifaceted, as there are varying independent physical, chemical, and cognitive interventions that can enhance, defuse, and/or originate an emotion (Banks & Zions, 2009). The primary region associated with originating emotions is the limbic system (Derryberry & Tucker, 1992). Within the limbic system lies a set of almond-shaped neurons that form the amygdala, an organ located deep in the brain's medial temporal lobe (Phelps, 2006). The amygdala has been called 'the seat of fear' (Berkowitz, Coplan, Reddy, & Gorman, 2007; LeDoux, 2002), as it is thought to be associated with survival-triggered emotions. However, some evidence indicates that the amygdala is not limited to the 'fight or flight' response, but may also generate positive emotion (Davis & Whalen, 2001; Hartmann et al., 2001; Schredl & Doll, 1998). This emotional system works effectively the same in both waking and dreaming experiences (Neilsen et al., 1991), and this region is often more active in the dreaming state, producing a higher level of emotional availability and potential reactions (Kahn et al., 2002).

In the waking state, emotion is regulated by the prefrontal cortex (Quirk & Beer, 2006), a region of the brain that acts as an informational loop, linking the executive control of behaviour with emotional information. When an emotion is about to be activated, the information is sent to the prefrontal cortex, where the individual's mind has

the opportunity to diffuse the emotion with rational thought (Damasio, Everitt, & Bishop, 1996; MacDonald, Cohen, Stenger, & Carter, 2000). In the dreaming state, the prefrontal cortex and its ability to intervene are effectively deactivated and the emotion runs its course inside the dream without being diffused (Kahn et al., 2002). Therefore, dream emotions are more likely to be reactive, compounding, and intense than emotions in the waking state.

As an example, the startle response has the psychological effect of releasing adrenaline and increasing the heart rate during the waking state as a function of the activation of the amygdala. During the waking state, cognitive processes in the prefrontal cortex help slow down, diminish, and diffuse the reaction quickly by perceiving that the danger was an imagined one (Grillon, Pellowski, & Merikangas, 1996). In the dream state, however, the emotional reaction produces an increased heart rate and the release of adrenaline, but there is limited cognitive intervention in the prefrontal cortex (Kahn et al., 2002). Thus the emotion and its physiological reaction must then run its course in the dream narrative despite the fact that physically the body does not move, as it is in a state of atonia, also known as sleep paralysis (Hishikawa & Shimizu, 1995; Levitan et al., 1999; Muzur, 2004). Even though the physical body does not move while a person is dreaming, the body is still sending neurological signals as if the person were really moving (Levitan et al., 1999). As a result, dreamers imagine themselves running, jumping, or engaging in other physical activities that allow them to remove themselves from the perceived danger.

As part of the emotive reaction to the dream stimulus, the brain systems of the dreamer are also sending the actual neurological signal to parts of the body; however, the

signals are turned off through atonia so as to prevent acting out the dream in the real world while asleep (Levin & Nielsen, 2007). Although the body is paralyzed in sleep, the internal physiological reactions to the emotion are the same as in waking and dreaming (Levin & Nielsen, 2007); namely, increased heart rate, increased breathing, and the release of chemicals or hormones associated with the emotional experience (Levin & Nielsen, 2007). For example, if one is startled in a dream, the dreamer's physical body may produce some of the associated physiological and chemical reactions of being startled (Kahn et al., 2002; Nielsen, Stenstrom, & Levin, 2006).

The similarities and differences between waking and sleeping emotions—and their associated physical and psychological reactions—make dream reactions both real and intense for the dreamer, regardless of whether the emotion is positive or negative in nature (Revonsuo, 2000). Although this study seeks to elucidate the effects of positive emotions in the dream state, understanding the effects of negative dream emotions may reveal mechanisms by which desired changes can be intentionally effected.

### ***2.8.1.2 Negative and Intense Emotions in Dreams***

Some dream researchers study positive emotions (Schredl & Doll, 1998), while others study the ways in which dreams produce negative emotions (Revonsuo, 2000). The studies in this area are often based on survival, adaptation, and evolution theories (Levin et al., 2010; Revonsuo, 2000; Schredl & Reinhard, 2009; Valli, Strandholm, Sillanmaki, & Revonsuo, 2008); childhood nightmare studies (Nielsen et al., 2006); and individual negative dream studies (Levin, 1994; Nielsen et al., 1991). For the development of the current research study, it was important to consider the tendency for dreamers to recall negative emotions in dreams and how the intensity of a negative emotion in even a small

part of a dream might overshadow the rest of the dream story.

Emotions that appear negative on the surface in a dream may actually have importance in learning, mood regulation, and survival (Revonsuo, 2000; Neilsen et al., 1991). Dream researcher Antti Revonsuo (2000) proposed the theory that negative dreams, and even nightmares, may be beneficial to dreamers. He referred to the negative dream as a 'threat simulation' or a 'threat rehearsal' (Revonsuo, 2000). According to Revonsuo's ideas, dreams evolved as an adaptive survival function for learning to overcome fears and move through obstacles and challenges (Barrett, 2007; Dallett, 1973; Revonsuo, 2000; White & Taytroe, 2003). Coping with threats and learning to survive is a reasonable use of brain function during sleep (Revonsuo, 2000). Evidence to support this can be found in the work of Cartwright (1991), as she noted that those who dream about and incorporate stressors in their lives are more likely to be able to work through depression.

Researchers have also found that dream emotions which trigger fear do not necessarily result in a traumatic experience, but rather have developed evolutionally utility and serve as a training ground for problem-solving, anticipation, and adaptation (Revonsuo, 2000). It may even be the case that the dream state acts as a kind of virtual reality playground for realistic scenarios (Foulkes, 1985), which helps keep a person alert and adaptable to potential situations in waking life. McNamara (2004) suggested that an individual's ability to hone their emotions and cope with high-emotion stimuli, such as fear, may be a function of dreaming, as the instinctive reactions essential for survival require an intense emotional component are tied to physiological and biochemical responses. Therefore, fear triggered in the dream state allows a person to practice

automatically responding to perceived dangers without cognitive thought.

While dreaming may have originated as a means to stimulate and reinforce the body's autonomous physical response to possible environmental dangers, modern society offers its own set of stressful events that have replaced pre-historic, animalistic dangers (McNamara, 2004). For example, social interactions, problems with work, issues with family, and other situations specific to an individual's life and environment may trigger feelings of danger and anxiety similar to the feelings that snakes or lions triggered in prehistoric man. This is reflected in a person's dream state, as these modern stressors often arise in dream content.

However, the evolutionary origins of these types of dreams may still be observed most clearly in childhood anxiety dreams, which often begin with dreams of being chased or a fear of wild animals (Fisher & Wilson, 1987). A child's dreams may therefore be an unveiled look into dreams as a genuine survival-promoting mechanism. Indeed, a child's nightmares may then be a kind of training ground that helps the child work through situations that create anxiety until he or she is able to handle the heightened emotion associated with the anxiety-inducing situation (Foulkes, 1985; Revonsuo, 2000).

While nightmares can occur at any stage of human development (Fisher & Wilson, 1987; Levin, 1989), there seems to be a window of intensified occurrences between the ages of 5 and 12, as 20–40% of dreams produced by children of this age group contain nightmares (Fisher & Wilson, 1987). While nightmares begin to decrease in adolescents, other forms of disturbing dreams still occur at a higher rate in adolescents than they do in adult populations (Nielsen et al., 2000). For example, young females were found to have a higher prevalence of disturbing dreams, often resulting in higher

pathological anxiety when the dreams were recalled (Nielsen et al., 2000; Schredl & Pallmer, 1998).

The frequency of dreams in different groups of people can be corroborated with physiological observations. During foetal development, a foetus can spend 80% of her time asleep in REM (Siegel & Bulkeley, as cited in Hoss, 2005, p.18). Children aged 1 to 5 are in REM sleep 50% of the time they spend sleeping, and nightmares were reported to occur in 40% of these dreams, with animals being the primary source of fear (Revonsuo, 2000; Van de Castle, 1970, as cited in Hoss, 2005). After this point, the intensity of nightmares drops off, occurring less with age and resuming in adulthood only on rare occasions. In adulthood, nightmares are normally triggered during situational circumstances such as divorce, trauma, mental disorder, or waking life stressors (Nielsen et al., 2000).

The cited studies on the relative percentage of positive and negative dreams in children reveal that children's emotional reactions are based primarily on the content of their dreams and their emotions after waking. Often the dreams are validated or dismissed based on the cultural assertion of dreams as meaningless, prophetic, signifiers of destiny, a rite of passage, or warning of danger (Bulkeley, 2008; Hoss, 2005; Muris et al., 2000; Revonsuo, 2000). However, not all children's dreams are nightmares, and much of a child's dream content takes the child through a variety of experiences such as flying, going on an adventure, or morphing into various mythical or magical creatures (Van de Castle, 1983). Consequently, dream experiences from childhood cannot be considered wholly negative or positive.

At one time, the studies of dream emotions leaned toward results showing that

dream emotion were primarily negative (Hall & Van de Castle, 1966; Neilsen et al., 1991; Snyder, 1970; Strauch & Meier, 1996). However, recent studies have begun to show that the percentage of negative dreams may not be as high as originally believed (Schredl & Doll, 1998). Researchers Strauch and Meier (1996) found the content within dreams to be equally positive and negative. In other studies, positive emotions such as joy, cheerfulness, and interest were more prevalent than negative emotions (Yu, 2007). Much of a person's negative or positive reaction to a dream has to do with multiple factors that are specific to the individual.

Dream emotions may have more to do with an individual's personal temperament or the focus of the dream study, rather than all dreams tending toward the negative (Kallmeyer & Chang, 1998). If an individual is prone to negative emotion or has experienced a trauma in waking life, she is likelier to have a higher percentage of negative dreams (Barrett & Loeffler, 1992); along these same lines, positive waking emotions and having a positive personality are more likely to produce positive dream emotions (Gilchrist et al., 2007)

A dream consists of many emotions within the same dream story, and a person's waking interpretation or attention to the emotive aspects of the dream may shift her perception of the results. For instance, a day in which an individual experiences a traffic jam does not make the entire day negative. It affects one moment in a day filled with a variety of situations and emotions. However, if the person focuses on that one negative aspect of the day, their mood can tend toward the negative for the entire day. Along the same lines, if the individual recounts only one negative event from a dream, it may make it appear as if the entire dream was negative. For example, if a person dreams of having a

pleasant dinner with his or her family during 90% of the dream, but experiences an argument or trauma during the final 10% of the dream, it becomes difficult to classify the dream as wholly positive or negative.

Many studies look at dreams according to the percentages of positive and negative content, the specific content, and the emotions that are manifested in them; these researchers do not classify an entire dream as negative or positive (Levin, 1994; Nielsen et al., 1991). However, it may be that the results reported in these studies more accurately reveal the individual's waking cognitive and behavioural responses to the dream stimuli, rather than an objective evaluation of the dream as negative or positive. This line of thought underscores the point that most dreams are an amalgam of differing and morphing situations and feelings (Nielsen et al., 2000). Yet, more emotionally intense negative dreams are more accurately portrayed as a representation of the emotional state of the individual (Domhoff, 1996, 2003).

Negative dreams also represent the possibility that some phases of human development correlate with dreaming as persistently negative during stages of growth or distress (Barrett & Loeffler, 1992). There is also research that shows that individuals who are living within a healthy range of emotions in waking life are likely to have the same healthy range in their dream lives, which include a combination of both positive and negative emotions (Barrett & Loeffler, 1992). Furthermore, a substantial number of studies and anecdotal reports claim that dreams are also likely to generate positive emotions such as euphoria, joy, , and love as well as positive experiences like catharsis and making transcendent connections. Dreams of flying, connecting to the divine, spending time with loved ones, and achieving great insights or accomplishing creative



works can also produce positive emotions (Bulkeley, 2000; Garfield, 1988; Kahan, 2011; Kracke, 1987). As described in this section, emotions that range between positive and negative can be triggered in both dreaming and waking. The next section describes the impact of highly emotional events on behaviour and what might be learned from these situations.

### ***2.8.1.3 Behaviour and Emotion***

Behavioural changes can take place almost instantly when they are associated with survival triggers and strong emotional causes (Ehring & Quack, 2010; Germain & Nielsen, 2003; Hopper, 2007; Kothe & Pietrowsky, 2001; Ursano et al., 1994). However, the majority of these instant behavioural changes tend to be negative because they are often associated with survival (Germain & Nielsen, 2003; Hopper, 2007). Part of the goal of this study is to explore whether emotional triggers can be carried into a dream or dream-like experience and result in the perception of a lived experience that leads to a positive outcome; for example, the types of emotions that are generated in spiritual experiences.

Understanding the specific areas of the brain that are activated during behavioural change may help create the most effective and healthy way to program new behaviour. A look across various relevant fields regarding personal transformation, including spiritual revivals and experiential seminars, holds clues to using positive emotions for behavioural change (Crocker, 1999; Datillo, 2000; Luckner & Nadler, 1997; Polster & Polster, 1973). Positive experiences, like negative experiences, can alter both the individual's behaviour and her belief systems; as such, it may be possible to use positive emotions as a way to achieve behavioural change.

Different emotions carry different levels of intensity (Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; Ursano et al., 1994). Generally, barring physical pain or brain injury, the higher the intensity of the emotion (whether positive or negative), the more memorable the experience becomes for the individual (Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; Ursano et al., 1994). When an additional survival emotion is triggered in association with an emotional event, the corresponding behaviours and belief systems, as well as the normal neurological patterns associated with these systems, are swiftly altered (Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; Ursano et al., 1994). This is because emotion is both a physiological and chemically induced reactive state (Hopper, 2007).

Once an emotion is triggered, there is a pattern of behaviour that is typically followed by the individual (Ursano et al., 1994). In some cases, a higher state of emotion combined with an experiential event can supersede the person's habitual patterns and reactions to certain stimuli (Germain & Nielsen, 2003; Ursano et al., 1994). This alteration can become permanent unless there is an intervention or an intense event that helps reprogram the new emotional reaction (Ehring & Quack, 2010; Hopper, 2007). The trick to achieving this alteration is to first trigger the emotion.

Existing techniques by which positive and high-intensity emotions may be triggered are described in the next section. By studying how emotions can be triggered both in the waking state and in the dream state, it may be possible to choose from existing techniques and someday incorporate the selected techniques for triggering emotions into the design of the dream method. The different techniques for triggering emotions and their associated studies are described further in the next section.

#### ***2.8.1.4 Triggering Emotion***

There are a number of methods that have been used to induce emotions in individuals. The intensity of the induced emotion varies between individuals; however, it is possible to trigger emotions using music, sound, facial recognition, gift giving, light, colour, and pictures (Davis et al., 1995; Fredrickson, 2000, 2001; Hoss, 2005; Neilssen, Dijker, & DeVries, 2007; Newhagen, 1998; Tomarken et al., 1990). Some studies have combined these methods to heighten the intensity or success rate of inducing emotion (Fredrickson & Levenson, 1998; Tomarken et al., 1990).

The International Affective Picture System (IAPS) is a standard way by which emotions can be triggered through the use of photographic slides. The photographs were repeatedly tested to find the highest rates of response and then included in the IAPS collection (Davis et al., 1995). They were divided into scales and categories ranging from negative to positive. The scale has become useful in studies because self-reported responses have shown consistency across the subjects in terms of triggering emotional reactions (Davis et al., 1995). Pictures associated with anxiety emotions such as fear, disgust, and anger also elicited comparable emotions in different subjects (Newhagen, 1998).

Furthermore, researchers have found that once negative emotions were triggered via the IAPS system, it was possible to counteract them by triggering positive emotions through exposure to positive images (Fredrickson, 2000, 2001) In one study, Fredrickson and Levenson (1998) triggered fear in study participants by using a movie clip of a man dangling from a ledge. This induced a physiological response and the emotions of fear and anxiety among the viewers. The same participants were then exposed to positive and

inspiring film clips showing ‘amusement and contentment’. After viewing the positive clips, the participants’ moods were significantly improved and their physiological states recovered to normal levels. Multiple other studies have also shown that emotions can be consistently triggered with pictures and films (Gross & Levenson; 1995; Hagemann et al., 1999; Tomarken et al., 1990).

Another trigger for emotions is the written word, whether in the form of books or other narratives that elicit emotions. Indeed, researchers have found that simply reading positive, negative, and neutral words and statements has an effect on an individual’s mood (Isen, Johnson, Mertz, & Robinson, 1985). Reminiscence through autobiographical writing can also produce both positive and negative emotions (Strack, Schwarz, & Gschneidinger, 1985). It is also possible to induce fear or guilt by simply having participants write about an event from their lives (Neilssen et al., 2007). These studies reflect the fact that participants can have emotions triggered by their own personal writings and also by writings that are not related to their personal lives.

Colour has also been used in studies to trigger emotion. Colour has the benefit of being both a sensory stimulus and an emotional stimulus. Hoss (2005) found that colours can be an emotional trigger and/or representation of an individual’s current feeling in the context of dreams. In addition, Hoss found that each colour is associated with an emotion that is specific to an individual in their dreams. Further, the level of light intensity also has the ability to affect emotion. As brightness increases, the intensity of an emotional reaction also increases. Brightness was not necessarily correlated with a specific emotional effect, such as a positive or negative emotion, but tended to increase or decrease the existing emotion in the individual (Hoss, 2005).

Finally, music and sound can also be used to trigger emotions; in fact, music tends to be the most consistent method by which emotions can be elicited in individuals (Bigand, Veillard, Madurell, Marozeau, & Dacquet, 2005). Of the various types of music tested, classical music was found to be the strongest in generating emotional responses (Kreutz, Ott, Teichmann, Osawa, & Vaitl, 2008). Natural sounds were also found to induce consistent emotional responses, but to a lesser degree than pictures and music (Bradley & Lang, 1999). Since music has the ability to provoke a variety of emotions on a consistent basis—without necessarily attaching a specific image, memory, or nostalgic thought to the emotion—music is a good possibility for a future dream induction method. Next, I describe the literature for the two specific emotional priming methods that could be used for influencing dreams to create behavioural change: music and embodied emotive exercises.

### **2.8.2 Narratives and Dreams**

As indicated previously, one of the three dream characteristics important for the present study is the apparent narrative quality of dreams. This section describes the work of researchers who recognized that, for dreamers, dreams often seem to flow like coherent narratives, even when the dream events seem disjointed from a waking-life perspective. This section also discusses the literature on the structures of narrative, how narratives manifest themselves in the dream state, and how narratives and storytelling affect people through their impact on culture, beliefs, thoughts, behaviour, and learning.

Narratives in many genres, such as books, films, and even verbal storytelling, may start at any point in the story. However, most narratives generally follow the structure of a beginning, middle, and end (Ramsdell, 2011). Not all dreams follow this concept of a

linear timeline (Kilroe, 2000); however, dreams still take on a narrative quality for the dreamer. In general, a dream narrative appears as a successive structure or as sequences of fractured events that create a multi-dimensional story format (Ramsdell, 2011). As such, a dream narrative may have either a traditional narrative story format or it may appear as an episodic series of fragments that are stitched together to form a sequence of mini-narratives (Wax, 2004).

Hoss (2005) noted that dreams often occur as narrative segments or fragments in that they jump or switch from one scene to another. While in the dream state, the executive part of the brain that controls episodic and working memory is offline (Hoss, 2005, p. 48). Hoss believes that these dream fragments, shifts, or segments should each be treated and analysed each as a different independent dream (Hoss, 2005). Therefore, a dream may show one portion of an experience or scene—or even a single event, image, or experience—rather than a complete narrative (Kilroe, 2000). In fact, even when the dream narrative occurs as a full story, the story often lacks an ending or a sense of completion (Hill, 2004). While these broken or partial formats would not work to sell books, they appear to have no lasting effects on believability for the dreamer.

Even when dreams are comprised of a series of fractured or fragmented scenes, images, or feelings, there is often an acceptance by the dreamer that the dream is a part of his or her natural world (Kahn & Gover, 2010). While in the dream, these episodes seem normal to the individual because he or she is unilaterally caught up in the moment (Kahn & Hobson, 1993). The dreamer is focused on the experience itself and generally has no real thought of his or her autobiographical past or distant future; the feeling of reality continues regardless of how the dreams are manifested, how they transform, or how

completely they change (Kahan, LaBerge, Levitan, & Zimbardo, 1997; Kahn & Hobson, 2004).

In a dream, even though the narrative can change without warning, the dreamer accepts and enters the new narrative or dream fragment as if he or she had always been there (Kahan et al., 1997; Kahn & Hobson, 2004). A dream may contain a sequence of events, images, or emotions that are not necessarily connected to one storyline, yet there is an absorption in the moment that often occurs regardless of changing emotions, settings, scenery, situations, or characters (Kahan et al., 1997; Kahn & Hobson, 2004). This failure to recognize changes in a dream is known as change blindness (Simons & Levin, 1998). For example, the dreamer could be fighting off aliens in space at one moment and then meditating on a beach in India at the next instant, and the dreamer does not really question why the scene has changed because of change blindness. He or she is simply immersed in the newly manifested moment.

For the purposes of this study, the important point of this research is that dreamers experience dreams as narratives, regardless of the exact structure of the story in the dream. This is because the episode seems so realistic that the dreamer becomes completely immersed in the dream and experiences it as a cohesive story despite its fragmented nature (Kahan et al., 1997; Kahn & Hobson, 2004). To generate a sense of cohesiveness, the dreamer needs only to be within the dream scene; the natural dreaming mechanism draws the dreamer into the moment and unveils a series of events to carry the narrative forward (Hoss, 2005). Having a narrative helps create associations between the events, emotions, and triggers that help the dreamer recall the events later (Stickgold, 2005; Wamsley et al., 2010).

### ***2.8.2.1 Narratives and Memory***

One of the reasons why the narrative quality of dreams is important to this study is that a narrative enables the dreamer to better remember her dreams and, thus, experience them as meaningful events (Stickgold, 2005; Wamsley et al., 2010). When a dream contains a single narrative story format, it is easier for the dreamer to remember and to relate to the story because of the predictable sequence; the dreamer can more easily associate dream events with elements that have personal significance (Kilroe, 2000; Pasupathi & Wainryb, 2010; Wamsley & Stickgold, 2011). This is also true of stories in waking life, which are bound to our memories by the emotions they elicit and by the meaning that individuals give events (Wamsley & Stickgold, 2011).

A story sequence may contain multiple associations embedded in the experience and can therefore create several potential triggers. Memories of life events can also be triggered by encountering similar patterns or previously experienced sensory stimulation (Pasupathi & Wainryb, 2010). For instance, smelling or tasting something can set off an associative pattern that reminds a person of an experience connected to that particular scent or flavour (Pasupathi & Wainryb, 2010). A single memorable image, experience, event, or sensory stimulation in a dream may occur when the dreamer focuses on a single piece of music or single visual image that inspires her.

Memories of dream experiences often provide inspiration to creative artists who use dreams to inspire works of art or to assist with problem solving (Domhoff, 2003). These individuals are able to carry the inspiring memory of these dreams into their waking lives, even though it might only be a fragment of a sound or an image associated with the dream (Barrett, 1993; Garfield, 1995; Mellick, 1996). For these creative



individuals, a sequential narrative is not necessary and may actually inhibit the artists' ability to focus on and memorize the particular images or sounds that they are trying to remember.

The use of dreams to promote creativity has been successfully applied in a wide range of creative and problem-solving fields. The works of Salvador Dali, Shelley's *Frankenstein*, the invention of the sewing machine, the discovery of the benzene molecule, and various musical compositions (Barrett, 1993; Garfield, 1995) are but a few examples of dreams that were used to create or discover something new in waking life without a structured narrative to support the idea. These are the rare dreams that capture the imagination and inspire ideas; but to bring these ideas and narratives of the dream stories into waking life, the dreams must be recalled.

Few dreams are remembered, for there are dozens, if not thousands of dreams that are forgotten before waking (Domhoff, 2003; Hobson et al., 2000). The ability to remember dreams, even among the most experienced of dream recallers, is generally poor. A person who has trained in dream recall can remember up to 10–15% of dreams each night, but the general population remembers a smaller percentage of dreams (Domhoff, 2003). Further, within hours of waking, the dreamer's memory continues to fade and she remembers an even smaller percentage of the dream's content (Hoss, 2005). People who intentionally exercise their ability to remember dreams increase their percentage on average to 49%, but there is still a substantial loss after various intervals of time (Watson, 2003).

During a dream study in the laboratory, waking the dreamer from REM sleep to recount the dream as it takes place has helped to retain some recall, but there is still a

substantial loss of dream content even after a person has related the dream story (Horton, 2011). Other studies have shown that substances such as galantamine, a drug used to treat dementia of the Alzheimer's type, can help in recalling dreams (LaBerge, 2003). This inconsistency in the ability to recall dreams makes it difficult for an individual to recall a dream.

Even when dreams are remembered, the person who analyses the dream must take into account the subjective nature of the dream narrative. Hobson (2002) questioned whether the narrated experience actually corresponds to the dream experience once it has gone through a translation process from experience into language. Furthermore, the accuracy of a dream account is always in question. A verbal account of a dream story cannot be equated with the dream experience itself (Tedlock, 1991), as the audience of a dream narrative is wholly dependent on the dreamer for the details (Wagner-Pacifici & Bershad, 1993). Researchers frequently assumed that the dreamer was relating what really occurred, in the same sequence it happened (Wax, 2004); however, the accuracy of the dream account is often unintentionally flawed. This has to do with the ability to remember dreams, the selective focus on certain details of the dream, and the transformative effects that take place in memory (Schredl, 2002). The implication is that while the story related by the dreamer may not accurately describe the dream narrative, the narrative that is recalled carries a separate meaning. In other words, the narrative can exist and benefit the dreamer and the listener regardless of the original dream content (Tedlock, 1991). The benefit then comes from the meaning people invest in the story, and not the original story itself.

### ***2.8.2.2 Storytelling and Dreams***

Humans have a storytelling nature, and meanings are inherently given to stories in many cultures. Stories are used to pass down cultural history and to teach generational values, lessons, and beliefs (Sims & Stephens, 2005). In addition to traditional benefits, stories also have known neurological and psychological benefits. Stories help create memory associations (Pasupathi & Wainryb, 2010) and facilitate the ability to retrieve memories (Stickgold, 2005; Wamsley & Stickgold, 2011), in addition to their use in learning life and cultural lessons (Campbell, 1949). As a form of entertainment and pleasure, unique and diverse stories have been created in every culture throughout history and many have become the myths, legends, history, and folklore that have been passed down from generation to generation (Dundes, 1989; Sims & Stephens, 2005). Dreams are powerful because they are the most engaging kind of story. In many cultures, the power of dreams is that they are stories experienced and believed by the culture to be a form of reality (Tedlock, 1991).

Dreams can provide entertainment, neurological associations, and meaning, but their narrative form is often vastly different from the structured narratives in traditional storytelling. This is because narratives are not just stories that we hear about other people, but are also a person's individual life experiences. Personal narratives are often also called personal myths (McAdams, 1993), as they are a combination of a life story—i.e., an individual episodic event—and the meaning that an individual ascribes to that particular event (Feinstein, Krippner, & Granger, 1988). These personal narratives and their meanings often shape a person's identity (McAdams, 1993) and set in motion an expectation of how a person anticipates his or her own actions in similar situations, which

shapes future behaviour and thoughts. The changes and evolution that occur in personality and behaviour over time accumulate in a process that is identified as a person's narrative development (Ray, 2000). Indeed, a person's memories are closely linked to how that person identifies herself.

McAdams (1996) indicated that identity is a life story by explaining that a person's life events accumulate in order to give him or her an evolving personal myth that establishes an identity and unifies his or her experiences to give a sense of purpose. These life stories serve as both memory and behaviour reaction references. Therefore, personal stories serve not only to help a person learn, but also to provide a foundation for habitual reactions and interpretations that influence future behaviour and thought patterns.

Stories, dreamed or otherwise, have an inherent structure that provides meaning and intuitive knowing to people (Polkinghorne, 1988). The meaning is gleaned and shaped by different factors, including any emotional reaction to the event (Mader, 1996), the cognitive meaning constructed after the event, and any influence from the philosophies, religious beliefs, and the culture in which the person lives (Brockelman, 1992). Even if a personal narrative originally held a more destructive meaning, it can be transformed to provide a more empowering outlook (Gold, 2007). In the book *Man's Search for Meaning*, author Frankl (1984) discussed how the meaning given to an event can dramatically affect whether a person becomes empowered or traumatized. If the meaning attributed to a traumatic event is negative, interventions now exist to provide a shift toward an empowering meaning (White & Epston, 1990). One of these interventions is through the use of narrative therapy.

### ***2.8.2.3 Narrative Uses in Therapy***

Stories are used in an infinite number of ways and combinations in the therapeutic realm (White & Epston, 1990). The most commonly taught method is to work with either a real narrative from the person's past, to invent a fictitious narrative, or to analyse a person's relationship with their narrative (White & Epston, 1990). In order to work more systematically on a person's life stories and understand the impact those stories have on emotions and behaviour, several forms of narrative therapy were developed by Michael White and David Epston (1990). Emerging forms of narrative therapy in these areas are designed to help people rewrite the meanings they have given to certain events or narratives in order to transform their relationships and reactions to these events (White & Epston, 1990). The ability to effect personal change often comes down to the meaning a person has attributed to particular personal myths (McAdams, 1996). According to McLeod (1996), 'all therapies are narrative therapies' and 'whatever you are doing, or think you are doing, as therapist or client, can be understood in terms of telling and retelling stories'.

Specific therapeutic methods that use narrative include healing stories, gestalt therapy, psychodrama, guided imagery, hypnosis, and past life regression (McAdams, 1996; Polster & Polster, 1973; Provost, 1999; White & Epston, 1990). It is important to note that the stories used in these therapies originate from the subject, not the therapist (White & Epston, 1990). When the story originates from the subject, the emotions are stronger and more consistently generated than when the subject is taken through guided visualization, where the image is formed for them and they are asked to follow it (White & Epston, 1990). Because a personal narrative affects a person's behaviour (Feinstein,

1998), it is possible to intentionally influence a subject toward targeted behaviour through the conscious modification of a personal narrative.

Dream narratives are constructed from an individual's waking emotions and experiences, and also from the individual's cultural and social influences. Similarly, the psychological impressions of dreams are like those of cultural exposure (Caughey, 1984). Dreams provide opportunities for autobiographical learning (Nelson, 1994), but can also shape a person's behaviour and everyday conduct (Feinstein, 1997, 1998). Dream narratives also exercise the imagination, acting as a virtual training ground for a person's coping skills in their waking life (Foulkes, 1985; Germain & Nielsen, 2003). While dreams often have little thematic consistency, the ability to fluctuate from one dream storyline to another means that there is the possibility of changing the dream story to a different, more desired story without resistance on the part of the dreamer. From there, the dreamer's ability to become immediately absorbed in the moment makes the transition smooth and creates immediate engagement in the dream storyline.

In the current study, the goal is to investigate if dreams can be used in a way to create behavioural change. With respect to the element of narrative as a mechanism of change, what this means is that the dreamer may need to be challenged by something that has the potential to trigger an old behaviour pattern within the dream, but then allows the subject to work to overcome that challenge by acting out the new desired behaviour within the dream. This provides a beginning, middle, and final resolution of the dream, as well as an opportunity for the dreamer to have a lived experience of successfully using the new behaviour. As this experience takes place in the dream state, it feels similar to an authentically lived real-life experience and the participant's memory may record it as a

genuine experience that can be referred to in similar real-life situations in the waking world.

The major difficulty in working to intentionally manifest dreams is the introduction of a storyline. Dreams do not tend to follow a person's wishes for a specific story as readily as a person's waking mind, although lucid dreaming does offer an opportunity for direction and control of the dream narrative (Gillespie, 1988; LaBerge, 1985). In a dream, the dreamer can easily wander off-topic either mentally or physically into completely unrelated scenarios (LaBerge & Levitan, 1993). This is one of the reasons why it is highly unlikely that dreams have a preconceived subconscious storyline.

According to Freud (1976), dreams were considered unconscious messages, and some believed that the dream story was predetermined. However, dreams are much more in line with daydreaming, as they flit from one thought to another and sometimes venture far afield of the original thought (Beck, 2002; Kahan et al., 1997). For example, a person in a dream state may try to remember to get her umbrella from the car and suddenly find herself thinking about the rainforests in the Amazon. However, despite the unique structure of the dream narrative, it is usually the case that the dream narratives can succeed in conveying a strong sense of reality in the dreamer (Kahan, 1994; Kilroe, 2000). In fact, it is this reality that makes the dream feel like an authentic lived experience and may hold the key to creating a realistic scenario of successful behavioural change for the dreamer. The conditions that contribute to this sense of reality are discussed in the following section.

### 2.8.3 Reality and Dreams

A third important element that is commonly found in profound dreams is a sense of the reality that the dream carries. In other words, the perception of the dreamer is that the dream is real, at least at the moment. Many different interacting elements that make the dreamer feel physically, physiologically, and mentally immersed in the dream can work to create the perception that the dream reality is actual reality (Hobson, 1998; Kahan, 2011). If researchers can successfully identify the nature of what makes a dream feel like reality, then scientists and therapists may be able to develop methods to manipulate, mimic, or reproduce dreams at will. This knowledge may also help researchers better understand how dreams may be related to other forms of apparent reality, such as delusions and hallucinations, which are also perceived to be reality by the people who experience them (Hobson et al., 1998; Hobson et al., 2000; Jacobs, 1978; Nir & Tononi, 2009).

That a dream can be perceived as real by the dreamer does raise an important consideration about the nature of memory and identity, especially since the dreamer does not remember his or her own identity within the dream. In other words, can the loss of autobiographical memory in the dream state actually provide the dreamer with a realistic lived experience recorded in their behavioural response memory? To answer this question, a review of the scientific studies on dream reality, as well as the presentation of examples in various cultures that hold the beliefs that dreams are a form of actual reality follows.

People from various cultures who believe in the reality of dreams are able to use the dream state to fully live out different lives, encounter alternative experiences, find life



direction, and discover answers to spiritual questions (Tedlock, 1992, 1999). Western cultures may be tempted to view such a belief with scepticism; nevertheless, researchers have found that a culturally-rooted belief in the reality of a dream has the potential to transform one's view of both dreaming and waking life (Bulkeley, 2008; Tedlock, 1992, 1999). Researchers have postulated some ideas regarding the influence of volition, metacognition, self-reflection, and consciousness on how a person perceives a dream as reality (Hobson et al., 2000; Kahan, 2011; Kahan & LaBerge, 1994, 2011; Kahn & Gover, 2010; Kozmova, 2012), but the mechanism and neuroscience behind dream reality are still largely unknown.

The perception of reality inside a dream is due partially to the dreamer not being able to differentiate between externally- and internally-generated sensory information (Hobson, 1998). This may be, to an extent, the result of the reduced level of volitional control and self-reflection that are the consequences of a reduction of brain activity within various cerebral regions during sleep (Braun et al., 1997; Maquet et al., 1996; Nofzinger, Mintun, Wiseman, Kupfer, & Moore, 1997). The suspended or reduced control of the areas of the brain that control consciousness, self-reflection, and volitional perceptions provide a unique window for the dreamer to experience imagined events as reality (Erlacher & Chapin, 2010). The suspended or reduced control of these areas of the brain further allows the dreamers the opportunity to perceive themselves in a way they might not have otherwise accepted as a possibility, effectively giving the dreamers an opportunity for alternative lived experience (Gackenbach, 1991; Kahan, 2011; Nofzinger et al., 1997).

If it is possible to find the triggers that create a state of reality in a dream, then a

person can be provided with the opportunity to live out the successful completion of a new behaviour pattern within that dream. With one successful dream experience, subsequent experiences may be easier to reproduce. However, to produce the power of a lived experience within a dream, it is necessary to generate a realistic experience that is as close as possible to waking reality. The dream state has some of the ideal characteristics of a believable artificial reality (Erlacher & Chapin, 2010) while still providing some safeguards to limit mental or physical harm through conditions such as sleep paralysis (Kavanau, 2005). In order to achieve a sense of reality in a dream, some of the primary dream qualities that must be achieved include self-reflection, consciousness, and/or volition (Kahan & LaBerge, 1994; Kahan et al., 1997; Kahn & Gover, 2010; Kahn & Hobson, 1993).

#### ***2.8.3.1 Self-Reflection, Consciousness, and Volition in Dreaming***

For the purposes of this study, the absence or reduction of volition in the dream state is considered to be a decrease in a person's conscious ability to draw from memories and past experience and to use that information to make decisions within the dream. This should not be misunderstood to mean that there is no self-awareness, problem-solving, or cognitive thought processes occurring in a dream state when there is an absence or reduction of volition (Kahn & Gover, 2010; Kahn & Hobson 1993; Kahn et al., 2002). Rather, the dreaming state can lack a portion of the conscious self-reflective element available in the waking state (Kahan & LaBerge 1994; Kahan et al., 1997). This leads to a person to believe that dream actions are real and base his or her focus on the immediate and situational events occurring at that moment in the dream (Kahan, 2011), rather than using past experience and knowledge to deduce whether the situation is a dream or

reality. This reactive state is also enhanced by various unimpeded emotional stimuli (Kahn et al., 2002). The exception to this is within lucid dreaming states.

While self-reflection and volition are often attenuated in the non-lucid dream state, cognitive functions in other areas, such as problem-solving and anticipatory thinking, appear to remain intact in most dreams, even though the reaction may be delayed (Kahan & LaBerge, 1994; Kahn & Gover, 2010). While these functions are present, it does not mean the dreamer has conscious control or awareness. However, some studies show that conscious self-reflection can be present in dreaming (Kahan, 1994) and specifically found in lucid dreaming (Gackenback & LeBerge, 1988).

While there is reflective and conscious thought within the dream state, the majority of these thought processes centre around anticipatory thinking (Kahan et al., 1997), i.e., what a person anticipates will happen next, rather than historical thinking, which is an interpretation of what an event means within the context of a person's past experiences or identity (Kahn & Gover, 2010). For instance, if a dreamer is confronted by a lion in her dream, the focus would be on anticipating the next move of the lion, rather than on considering that it is not realistic for a lion to be in the dreamer's bedroom, which is suddenly located on a space station. For the non-lucid dream state, there might be some thought given to what is happening in the present, but there would be little thought on the part of the dreamer of whether the situation is real and how that situation fits in with the dreamer's previous knowledge and experience in the waking life. The impaired ability to use self-reflection in a non-lucid dream state contributes to a person's inability to differentiate between internally- and externally-generated stimuli (Hobson, 1999; Kozmova, 2012; Nir & Tononi, 2009). When this is combined with the internally-

generated activation of the occipital regions and other enhanced neurological activity, a temporary state of delusion and hallucination is created in the dream state (Hobson, 1988, 1999). The reduction of self-reflection, combined with bizarre content and hallucinations, places non-lucid dreams in a category similar to delusion (Hobson, 2002).

The non-lucid dreamer is further limited in her ability to recognize incongruence within the dream world that would, in waking instances, allow her to identify the state as imaginary (Kozmova, 2012). This delusional state has similar traits to the experiences of patients with mental dysfunctions. Patients with Parkinson's disease and narcolepsy may have specific connections to REM mentation, which may cause associated visual hallucinations and other symptoms that are similar in scope to delusions and mental disorders (Boeve, Silber, & Ferman, 2004; Pacchetti et al., 2005).

### ***2.8.3.2 Delusion, Mental Disorder, and Dreams***

Dreams have certain similarities to hallucinations (Jacobs, 1978), disorientation (Hobson et al., 1998), bizarre thoughts (Hobson et al., 2000), amnesia (Nir & Tononi, 2009), and other conditions (such as schizophrenia) which may be classified as mental disorders (Hobson, 1998; Hobson et al., 2000; Scarone et al., 2008). However, the difference between dreams and waking-life delusions is that in the dream state, even though the situation can be accepted to be real at the moment it occurs, one has the ability to return to waking reality, thereby limiting its impact on the individual's ability to function in her life and within the confines of her society and culture (Hobson et al., 2000). While a person may be caught up in a dream as if it were real, upon waking, he or she is able to effectively differentiate between the reality of life and the experience in the dream (Kahan & LaBerge 2011). That said, the dreamer might experience confabulation,

which is a brief period of confusion wherein the dreamer has difficulty ascertaining whether the dream experience was real or not. However, this often passes within a few moments of waking once the person has had a chance to orient herself back to waking life (Kahan et al., 1997).

While the confusion between dream and waking memories is brief (Kemp, Burt, & Sheen, 2003; Rassin, Merckelbach, & Spaan, 2001), people can have difficulty differentiating between dream memories and real events (Kemp et al., 2003; Rassin et al., 2001). Reports of people who have woken from a dream who were not able to immediately re-adjust to their surroundings or their own identities after they being absorbed in a dream are quite common (Kahan et al., 1997). When a person temporarily loses the ability to discern between their actual experiences and their dream lives (Kahan et al., 1997; Hobson et al., 2000), their dream experience becomes as real as their waking life, to the point where their ability to recognize their waking life surroundings becomes temporarily distorted (Kahan et al., 1997). This fact shows that a significant level of realism within a dream can be carried over to waking life. This effect of a lived, realistic, palpable experience thus becomes greatly beneficial to creating a lived experience for behavioural change.

### ***2.8.3.3 Effect of Dreams on Beliefs***

Reports show that some dreams are so real that the dreamer lives a profound experience within the dream, which causes a shift in that person's perceptions, behaviour, and beliefs in waking reality (Dement, 2008; Gruber, Steffen, & Vonderhaar 1995; Knudson, 2006; Kuiken et al., 2006; Kuiken & Sikora, 1993). The lasting effects of a profound dream experience may vary, but researchers have seen a shift occur among

those who have profound dreams (Dement, 2008; Gruber et al., 1995; Knudson, 2006; Kuiken et al., 2006; Kuiken & Sikora, 1993).

A profound dream can also affect decision-making in individuals. For example, when Morewedge and Norton (2009) asked a group of people whether they would get on the plane the next day *if* they had a dream about a plane crash the night before, even individuals who normally dismiss dreams as nonsense acknowledged that a dream about a plane crash would be very likely to affect their decision to board a plane the next day. This study also showed that simply the *possibility* of having a prophetic dream can alter future behaviour. Thus, one key element in making a dream or dream-like experience induce a behavioural change is to make it as realistic possible for the participant. It is therefore necessary to understand the various stimuli and conditions that contribute to a sense of reality and the conditions that make dreaming like a lived experience.

#### ***2.8.3.4 Dreaming as a Sensory Experience***

The world of reality is a physical plane, even if an imaged one, that a person experiences by interacting with people and the environment, using sensory stimuli that involve touch, smell, taste, sight, and sound. These physical and sensory experiences evoke thoughts and emotions (Kahn & Hobson, 2005; Symons, 1993). As a result, people experience life through a combination of thinking, feeling, and interacting in the physical environment using their physical body. Tactile sensations provide a person with the experience of being alive in a physical space. Without this physical element, the mind is simply performing mental exercises that are not grounded in the physical world. An essential component of reality and a lived experience are therefore predicated upon a person's ability to interact with his or her physical body in the physical world (Hobson,

1998). While artificial realities, such as guided imagery, contain a similar neurological connection to a lived experience, they also lack essential components such as physical stimuli from the real world, which are essential for creating complete lived experiences (Clement, 2007; Hobson, 1998). This sensory element is often not a consideration in therapeutic methods, and yet sensory experience may be a key component of a therapeutic method that seeks to help people change by creating new lived experiences.

Dreams provide a unique proxy for the lived experience by generating a physical experience involving the body in the experience. In the dream state, when a person thinks about moving his or her arm, the neurological signal is actually activated (Hobson & McCarley, 1977) but not executed due to atonia. According to Hobson and McCarley (1977), the reason the arm does not actually move is because the brain switches off the pathway leading from the brainstem into the body. The signal is sent just as readily as if the dreamer was awake, but it simply does not reach its destination.

This ability to turn on or turn off the brainstem is not limited to sleep. Studies that involve primates have shown that a primate can learn to activate the neurological signal for a particular limb of the body without actual movement in the limb itself (Taub, Uswatte, & Elbert, 2002). In these studies, primates were trained to walk on a treadmill in order to receive a treat. The treadmill was eventually removed, and primates had to activate only the walking signals in their brains, these neurological walking signals caused the treadmill to move by only using the electrical impulses generated by their brains; once this was accomplished, the primates receive a treat to reinforce the skill (Taub et al., 2002). The treadmill being activated by the primates' neurological signals was actually located hundreds of miles away from the primates (Taub et al., 2002). This

study demonstrates that one can instigate a physical reality in the mind without manifesting it in the body.

In a dream, neurons in the physical body are engaged, and they represent the dream experience as reality to the body (Hobson & McCarley, 1977). The dreamer is seeing, feeling, and producing brain activity that mirrors the physical experience (Erlacher & Chapin, 2010; Kahan & LaBerge, 2011). This means that the dream state is a genuine virtual reality experience for the dreamer (Erlacher & Chapin, 2010). This combination of realistic elements makes dreams a nearly ideal proxy for lived experience. As discussed at length in the previous sections, while the dreamer's volition is decreased in the dream state, the increase in limbic region activity, including an increase in the amygdala and thalamus, triggers a heightened emotional state. This emotional enhancement aids in the creation of a perceived reality (Bosnak, 2007; Kahn et al., 2002).

The enhancement and interplay of emotions is a core feature of creating a sense of reality (Bosnak, 2007; Kahn et al., 2002; Stickgold, 2005). Without emotion, a is watching a static image without meaning, association, or reference (Kahn & Hobson, 2005). An example of an emotionless state occurs when people with certain types of brain damage recognize their family members but believe that they are imposters because their ability to emotionally connect with what they see has been damaged (Nadler, Rabi, & Minda, 2010). This disconnection results in interactions that are interpreted not as a personal interactions, but rather as a life experience without context or a connection; this would be similar to watching a movie of someone else's life (Nadler et al., 2010). That is why the ability to trigger an emotional response is a core component that defines the reality of a dream experience. It also supports how both emotion and reality are closely



intertwined when considering the construction of dreams. A potential method exists for actively constructing reality within a dream-like state: lucid dreaming.

### ***2.8.3.5 Lucid Dreaming***

Dreams create a situation in which the individual's focus is often on whatever pressing concern is present in that specific moment of the dream story (Kahan & LaBerge, 1994). The resulting combination of visual and sensory stimuli, emotional enhancement, reduced self-reflection, and anticipatory thinking within a dream narrative structure brings the individual into the moment in a dream. When a dream is perceived as reality, it can provide the dreamer with the unique ability to experience something completely out of her normal comfort zone without the constraints of habitual or triggered cognitive responses. I believe that in the absence of interferences that would ordinarily create reminders of who the dreamer thinks she is or how she should act, the dreaming world holds the potential to create an unrestrained experience. In other words, the dreaming world presents the dreamer with the potential to experience the emotional consequences and benefits of an actual lived experience and the potential to create a foundation for new experiences.

The primary approach that was used in this study to explore dream experiences was lucid dreaming. During lucid dreaming, the dreamer has the unique ability to incorporate both dream qualities and consciousness into the dream landscape by allowing some control over various dream elements. Lucid dreaming may allow the construction of some elements of reality in the dream, while also adding the necessary control to direct the dream-like scene toward the dreamer's behavioural targets.

According to Clement (2007), the feeling of reality originates from the interplay

of visual stimuli and emotion, but it is also the physical sensations along with the narrative that give rise to actually living in a world of a dream (Hobson, 1998; Hobson et al., 2000; Kahn & Gover, 2010). Lucid dreaming provides interplay between visual stimuli, emotion, physical sensations, and narrative within the dream world. As such, an examination of how lucid dreaming affects a dreamer's behaviour is in order.

LaBerge (1987) contended that trying various behaviours in the virtual reality landscape of dreams can help a person adapt beneficial behaviours to waking life situations. As there are no real-life consequences in dreaming, a person can try a variety of different scenarios without fear of repercussions (LaBerge, 1987). While in most cases, the dreamer's consciousness remains largely unaware that the person is dreaming, there is one state of dreaming in which the dreamer can achieve varying degrees of awareness that she is dreaming while still inside the dream. This awareness and control is called lucid dreaming (Blagrove & Hartnell, 2000; LaBerge, 1993, 2004; LaBerge & DeGarcia, 2000; Waggoner, 2009). Van Eeden coined the term 'lucid dreaming' in 1913 when he presented a discussion to the Society for Psychical Research of the 352 lucid dreams he had recorded over a span of many years. However, lucid dreaming had been used and recognized long before Van Eeden's presentation. For example, Aristotle mentioned lucid dreaming in various writings (1952), and lucid dreaming has been a practice of Tibetan dream yoga for hundreds, if not thousands, of years (Wangyal, 1998). Some sects of Buddhism have been practicing lucid dreaming for centuries (Gyatrul, 1993). Dream yoga, which has qualities of lucid dreaming, was used by yogis to gain control over impulses and deepen their spiritual consciousness (Gackenbach & Bosveld, 1989). Native Americans also used lucid dreaming as part of vision quests to connect to

the spirit world, receive messages, obtain healing, and find direction on their life path (Tedlock, 1999). Despite the long history of recognition of lucid dreaming, very little attention has been paid to lucid dreaming as a therapeutic method and few individuals in the academic and scientific professions believed lucid dreaming to exist as a distinct phenomenon until the last few decades (LaBerge, 1980b; Wilkerson, 2000).

Increased interest in lucid dreaming has been generated through the systematic recording of various accounts of lucid dreaming (Tholey, 1980; Van Eeden, 1913), as well as through scientific studies that have confirmed the existence of lucid dreaming (LaBerge, 1980b). In the 1980s, Stanford University researcher Stephen LaBerge completed a study in which lucid dreamers were able to send eye signals while in the dream state to researchers in the waking state—these eye movements were used to indicate that the dreamer had reached lucidity. The LaBerge study was the first to scientifically confirm that lucid dreams were not only possible, but could also influence dream elements and become a skill acquired through practice and training (1980b).

In a lucid dream state, a wide spectrum of control and consciousness can be achieved. Lucid dreaming falls into two distinct categories. The first one occurs when the dreamer is aware of the dream, but does not or cannot direct it. This is a state that researcher Gackenbach (1991) considered to be ‘pre-lucid’. The second category is one in which the dreamer can direct dream elements to varying degrees (Erlacher & Schredl, 2008; Gackenbach & Bosveld, 1991; LaBerge & Levitan, 1993; Waggoner, 2009). Some dreamers may only attain temporary awareness of being in a dream state, and then fall back into the dream narrative without achieving any control over the dream itself (Gackenbach, 1991). Other dreamers, however, are able to achieve high lucidity by

becoming aware of the dream and gaining a certain degree of control over dream elements (Erlacher & Schredl, 2008; Gackenbach & Bosveld, 1991; LaBerge & Levitan, 1993; LaBerge & Rheingold, 1990). It should be noted that while some dream elements can be influenced or changed with lucid dreaming, it is rarely the case that the dreamer has full control over every aspect of his or her dream (Blagrove & Wilkinson, 2010; LaBerge & Levitan, 1993). As a result, the dream narrative, landscape, and characters often spontaneously evolve within a lucid dream.

Lucid dreaming does have its limitations. The Lucidity Institute's research on lucid dreaming suggests that a lucid dreamer is only able to produce a lucid dream about 30% of the time (LaBerge & Levitan, 1993). Another limitation to lucid dreaming is that only a small percentage of people can achieve a lucid dreaming state (LaBerge, 1980a; Snyder & Gackenbach, 1988). While LaBerge (2004) created training methods to assist people in learning how to manifest lucid dreams, achieving lucid dreaming as a skill may still require years of practice and yields inconsistent results (Paulsson & Parker, 2006; Snyder & Gackenbach, 1988). Some people have a seemingly natural ability to pick up lucid dreaming quickly, while the majority of people have a difficult time acquiring the skill (Snyder & Gackenbach, 1988). One study found that only about 21% of people were able to achieve lucidity once a month (Snyder & Gackenbach, 1988). Even among those who have achieved lucid dreaming regularly found that their control was not absolute and that there were spans of time during which lucidity was not achieved in the dream state (Blagrove & Wilkinson, 2010).

Research on lucid dreaming has primarily revolved around the following topics: the dreamer's control over the lucid dream space (LaBerge, 1980b; LaBerge &

Rheingold, 1990; Waggoner, 2009; Worsley, 1988; Zadra & Pihl, 1997), the level of cognition achieved within the dream, the origins of cognition (Bulkeley & Kahan, 2008; Hobson et al., 2000; Kahn & Hobson, 2005; Meier, 1993), and the personality, creative, and attention traits of people who experience lucid dreams (Blagrove & Hartnell, 2000; Patrick & Durndell, 2004). While studies have correlated lucid dreamers with higher levels of attention, creativity, and cognitive awareness in waking life when compared to non-lucid dreamers (Blagrove & Hartnell, 2000; Patrick & Durndell, 2004), it is unknown if this is due to the practice of lucid dreaming or if these traits were already present in the individuals and added to their ability to have a lucid dream.

Although research into lucid dreaming has been done, few studies to date have looked into the possibilities of using lucid dreaming for behavioural change. In addition, no locatable studies have been conducted to date that explicitly examine whether lucid dreaming can be used to promote lasting psychological and behavioural changes in the waking world. An exception involves studies that have attempted to assess the effect of inducing lucid dreams to address recurrent nightmares (Spoormaker & Van den Bout, 2006; Zadra & Pihl, 1997). These studies showed a decrease in the emotional levels associated with nightmares, but in some cases, there was no decrease in the frequency of nightmares (Spoormaker & Van den Bout, 2006; Zadra & Pihl, 1997).

However, even with the limited information on the applications of lucid dreaming for behavioural change, the elements and anecdotal stories recorded in forums and dream journals show that lucid dreaming has a significant potential to influence a person's thinking, emotions, experiences, and possibly their waking behaviours. Lucid dreaming also offers a level of consciousness and control of the dream world that is desirable in any

effort to assess whether dreams can be used in a way to create behavioural changes that manifest in the waking world.

## **2.9 Conclusion**

This chapter provided the framework for this study by describing the relevant literature on dreams and behaviour modification. As revealed in this chapter, neuroscience has advanced in ways that have given researchers tools to help them begin to understand dream processes (Aserinsky & Kleitman, 1953; Dement & Kleitman, 1957; Hobson et al., 1998; Stickgold & Walker, 2004; Wamsley & Stickgold, 2011). These tools include the ability to track the repetitive cycles in which dreams occur, recording the parts of the brain are activated during dreams, tracing the chemicals released into the brain and body during a dream, and experimenting with stimuli that can be used to affect dream content (Aserinsky & Kleitman, 1953; Dement & Kleitman, 1957; Hobson, 1998; Tononi & Cirelli, 2006).

By understanding the science behind dreaming, researchers may be able to develop methods with which to alter dreams and influence them in an intentional manner rather than allowing dreaming to occur as a matter of chance (Domhoff, 2003; Hobson et al., 2000; Snyder & Gackenbach, 1988). While this intervention has important therapeutic benefits to people with sleep disorders and nightmares, it also can be used to develop methods for behaviour modifications (Hill, 2004).

Behaviour modifications may be possible because researchers now understand the close relationship between waking concerns and associated behaviours as well as how both are mirrored in dreams (Domhoff, 1996; Hall & Van Castle, 1966). In-depth research that has recorded and analysed the content of thousands of dreams has revealed a

strong relationship between dream images, emotion, and waking life experiences or concerns (Domhoff, 1996; Hall & Van Castle, 1966). If a dreamer was upset during the day or has a pattern of a certain reaction to a stimulus, such as being yelled at, those responses and emotions are likely to appear in the dream narrative (Domhoff, 1996; Nielsen et al., 1991; Schredl & Doll, 1998). This theory provides information on how an individual's habitual triggers for unwanted behaviours, thoughts, and emotions may be activated, giving valuable insight about the dreamer to help with therapeutic and personal development goals (Domhoff, 1996; Hill, 2004). These findings also show that perhaps these patterns are being learned and/or reinforced as they are replayed in the dream world.

Further supporting evidence comes from studies on sleep and dreams which show that both sleep and dreams have multiple functions that are only just being unveiled (Nielsen, 2000; Pace-Schott & Stickgold, 2000; Stickgold, 2005; Wamsley et al., 2010). While some of these functions may be independent, such as cellular rejuvenation in sleep, other functions, such as memory consolidation and recording of procedural memory, may be deeply intertwined with both the sleep and dream processes (Nielsen, 2000; Pace-Schott & Stickgold, 2000; Solms, 2000; Stickgold, 2005; Tononi & Cirelli, 2006; Wamsley et al., 2010).

Research shows that sleep consolidates memory, whereas dreams may reinforce the memories (Stickgold, 2005; Wamsley & Stickgold, 2011). This includes both behavioural reactions and procedural memories (Gachenbach, 2006). If these processes are associated with memory and learning, then dreams may be experienced as even more than a powerful lived experience. Instead, an experience inside the dreamscape could

potentially rewrite the actual neurological wiring of a behavioural, thought-based, or emotional reaction by interrupting the normal recording or reinforcement of the habitual memory pattern, thereby creating an alternative reaction with the new dream experience. This process is already naturally done outside the awareness of the dreamer during sleep (McClelland & Rumelhart, 1996; Smith, 1995, 1996; Smith & Whittiker, 1987; Stickgold, 2005). What this means is that if the dream can be intentionally manifested to achieve a behavioural, thought-based, or emotional change, then the dream would not necessarily need to be remembered to be recorded in memory (McClelland & Rumelhart 1996; Smith, 1995, 1996; Smith & Whittiker, 1987; Stickgold, 2005).

The main challenge in this study was to understand how a dream experience could be intentionally manifested and subsequently used by the dreamer to alter his behaviour. In order to do this, the current study investigated the interaction and relationship between emotion, narrative, and reality in the dream-state and the effects of the participant's recent dreams on their waking behaviour. The literature reviewed in this chapter provided an overview of some of the current methods used for behaviour modification. This was then expanded into experiential learning techniques that provide a lived experience component. I then detailed the potential power of a lived experience with emphasis on dreams as a potential approach that could act as a relatively safe proxy of a real life experience, provided that a profound dream has all the realism of a real-life experience within a reasonably safe environment.

The potential of dreams to have positive life-altering effects was discussed, but it was clear that while dreams could have profound and life-changing effects, there were few methods that could systematically use dreams to promote such a change (Barrett,



1993, 2001; Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; LaBerge, 1993, 2004; Waggoner, 2009). The few available dream techniques that may possibly induce waking behavioural changes include lucid dreaming, nightmare resolution, and dream incubation (Barrett, 1993, 2001; Germain & Nielsen, 2003; Kothe & Pietrowsky, 2001; LaBerge, 1993, 2004; Waggoner, 2009).

After noting the few techniques available to intentionally use dreams as a way to achieve behavioural change, a detailed study of the characteristics of dreams was reviewed in the final sections of the literature review. The final section of this chapter provided a detailed explanation of the literature on the three aspects of dreams that are most crucial to this study; specifically, the emotional component, narrative quality, and apparent reality of a profound dream. Throughout the final section of this chapter, I made connections to aspects that would help in someday designing a systematic dream method for behavioural change, particularly in the descriptions of the research on lucid dreaming. In short, this chapter has provided a detailed review of all the relevant research that (a) helps to explain why this study is necessary, and (b) helps to justify this study's approach.

In Chapter 2, I reviewed the relevant information on dreaming so that I could determine the viability of using dreams for intentional behaviour modification. I believe that the information supports the idea of using dreams in that capacity. In Chapter 3, I describe the narrative analysis approach that was used in this study.

## **Chapter 3: Methodology**

### **3.1 Introduction**

This study investigated how the three dream elements of emotion, narrative, and reality in lucid and non-lucid dreaming might influence behavioural change in the research participants both within the dream state and upon their emergence from the dream state in their waking lives. The primary goals of this study were accomplished by exploring the study participants' dream experiences through interviews and dream journals using narrative analysis.

A qualitatively-based narrative analysis design was chosen as the methodological approach to explore how dreaming can affect behavioural changes. According to Czarniawska (2004), a narrative analysis is 'understood as a spoken or written text giving an account of an event/action or series of events/actions, chronologically connected' (p. 17). In other words, narrative analysis is essentially a methodology that is loosely based on literary principles, insofar as the investigator collects narratives from research participants and then weaves these narratives into a storyline that communicates the personal experiences of the participants under investigation to the reader (Creswell, 2007). The narratives are often presented as unfolding in a chronological manner during which a situation is resolved in some fashion (Carter, 1993, as cited in Creswell, 2007). An entire narrative analysis can be built around the experiences of a single respondent, although more than one respondent can be part of a narrative analysis research project (Creswell, 2007).

The manner in which lucid and non-lucid dreaming were used to formulate a narrative on the part of each research participant was systematic. The following three stages were completed in this order: (a) a pre-study behaviour exploration interview, (b)

the lucid and non-lucid dream recording, and (c) a post-study interview. An evaluation was then conducted of the three dream elements and the impact of dreaming on the participant's behavioural change during waking life. Evaluations were performed by analysing the dream journals and interviews with the research participants, and the results were presented in the same chronological order. Following this chronological order matters because, as Squire, Andrews, and Tamboukou (2012) stated, 'narrative is almost always said to be about *time*—not just succession in time, but change through time' (p. 295). Indeed, 'the distinguishing feature of narrative is its linear organization of events' (Cohan & Shires, 1988, pp. 52–53).

The remaining information in this chapter details the research design, the role of the researcher, participant selection criteria, all data collection procedures, all data analysis procedures, and the validity issues and limitations associated with the current study.

### **3.2 Research Design**

As indicated, this research study used a qualitative methodological approach to better understand the subjective narratives, emotions, and perceived reality of persons who engaged in lucid dreaming. A qualitative design was considered appropriate for this study because the data being studied were not numerical. Moreover, because I was seeking to better understand the subjective experiences of research participants, a qualitative approach was optimal as it allowed for flexibility in understanding emerging data (Creswell, 2003). The following sections detail the decision to use a qualitatively-oriented methodological approach as well as the decision to use a narrative analysis design for this study.

### 3.2.1 Qualitative Design

A qualitative design for this study was appropriate because of the subjective nature of dreams, particularly with respect to the personal experiences and emotional content that are closely associated with dream narrative formation. This study's qualitative approach allowed a full exploration of the introspective, experiential phenomena associated with dreaming. According to Auerback and Silverstein (2003), a qualitative researcher who wants to study subjective experiences should not be restricted to data that are quantifiable or measured through quantitative variables, as this is 'unnecessarily limiting' (p. 23). Rather, 'the qualitative research paradigm assumes that the best way to learn about people's subjective experience is to ask them about it, and then listen carefully to what they say' (Auerback & Silverstein, 2003).

While a quantitative approach might be effective in breaking down dreams to their individual components (see Domhoff, 1996; Hall & Van Castle, 1966), it hinders the exploration of the initial experiences as a complete occurrence because dreams are more than static images that can be enumerated. Because of their subjective nature, dreams can be conceptualized as a sensorial and emotionally immersive experience that impacts the mind-set of the dreamer. I believe that the dream experience can become more than the original dream, especially when it becomes a pliable emotional experience that is further shaped in meaning and memory. Finding out exactly what meaning the dream takes on and how it affects the dreamer's behaviour and mind-set is best done with a narrative approach by listening carefully and by diligently recording what the dreamer recounts. The next section describes the supporting aspects of a narrative analysis approach for this study.

### 3.2.2 Narrative Analysis Technique

The narrative analysis technique used in this study allowed me to observe, listen to, and record the subjective experience of the dreamers in order to understand their reality. As a technique, narrative analysis allows a researcher to capture a story as told by a research participant in order to determine how that person makes sense of events in her life (Riessman, 1993). Indeed, understanding the narrative of others is a central theme throughout most cultures and societies:

A story with a beginning, middle and an end that reveals someone's experiences... narratives take many forms, are told in many settings, before many audiences, and with varying degrees of connection to actual events or persons. (Manning & Cullum-Swan, 1994, p. 465)

As Lodge (1990) noted, a 'narrative is one of the fundamental sense-making operations of the mind, and would appear to be both peculiar to and universal among human beings' (p. 4). By studying a dreamer's narrative concerning his or her subjective experiences in a dream or dreamlike state, a researcher can better understand and make connections between how individual reality is perceived, formed, and recorded into memory on the part of the dreamer. In essence, a narrative analysis allows a researcher to better understand the experiences of the research participant.

As Bruner (2004) noted, researchers 'seem to have no other way of describing "lived time" save in the form of a narrative' (p. 692). This study relied on data gathered through extensive interviews with individuals concerning their personal dream experiences and the impact of those experiences as well as their personal interpretations of the experiences on their emotions and waking life behaviours. A dream is a unique

experience because there is the original dream experience and the waking linguistic description of the experience (Tedlock, 1991; Wagner-Pacifici & Bershad, 1993). The full dream experience is transformed specifically through the language used to form a narrative of the experience (Tedlock, 1991). Because a dream experience is not static, but rather evolves in both the internal real-time dream landscape and in the waking linguistic and mental translation of the dream experience (Tedlock, 1991; Wagner-Pacifici & Bershad, 1993), capturing a narrative description of the dream experience is paramount. McDrury and Alterio (2003) made this note on the capturing of a narrative:

A uniquely human experience that enables us to convey through the language of words, aspects of ourselves and others, and the worlds, real or imagined, that we inhabit. [Narratives] enable us to come to know these worlds and our place in them given that we are all, to some degree, constituted by stories: stories about ourselves, our families, friends and colleagues, our communities, our cultures, our place in history. (p. 31)

Thus, narrative is the indispensable tool of dream research, and it is the dream researcher's task to make space for and capture the narrative of the dream or dreamlike state. This narrative can be an essential element in understanding the complexities of human behaviour.

### **3.3 Role of the Researcher**

Ultimately, a dream is a story; a narrative of an experience which then comes to life and is reborn as a new narrative when it is retold, recounted, and analysed in the waking world. The dream is relived and reimagined in a whole new way that is separate from the original dream experience when it is recast as a narrative that is told to another person.

The researcher's role in this study was to understand the research participants' recounting of their dreams from a narrative perspective, not simply as a collection of data but as a story that conveyed the perspective of the participants' experiences. Narrative analysis, like most forms of qualitative research, requires that the researcher be attuned to an in-depth and comprehensive understanding of the topic under investigation. This is accomplished not by being a dispassionate investigator of relationships among variables (as is the case in quantitative research) but rather by obtaining a rich description of the perspective of the research participant (Schutt, 2011). This includes preserving any and all information rendered by the research participants. In that spirit, I examined all of the material that study participants related to me and did not break them down as if the information was separate from the participant but held all the information as a significant part of the whole human story.

Narrative analysis provides the unique opportunity for a researcher to facilitate the creation of a narrative with the participant as a way of understanding the participant's subjective experiences (Creswell, 2007; Riessman, 2008). The better a researcher can understand the participants' experiences, the more accurately she can convey to others both a given narrative and its relevance to the body of literature on the topic under discussion. Rather than simply collecting, organising and analysing participant's material regarding their dream experience. In other words, I embraced the subjectivity inherent in narrative inquiry in both data collection and data analysis. This approach helped to keep the experiences of the research participants in a narrative form rather than as a collection of component parts.

### **3.4 Participant Selection**

Criteria for selecting individuals for this study reflected the unique participant characteristics required for a fine-grained study of dream experience and the exploration of dreams as a possible tool in intentional behaviour modification. The emphasis on skill in lucid dreaming is of particular note. Lucid dreaming was chosen based on current research of the ability of these states to successfully incorporate the three elements of dreaming, emotions, narrative, and the dreams' ability to induce reality, as cited previously in the literature review. Lucid dreamers were specifically chosen because this form of dreaming has a mechanism through which the narratives of each participant's dream could be drawn out and recorded for further analysis. Additionally, lucid dreaming has the potential pliability needed to incorporate strategies related to behavioural change, strategies that may be tested in future studies as researchers develop additional dream induction methods.

In the selection criteria, the participants were assessed by determining the number of nights each week they were able to become lucid while dreaming and the amount of control they could assert over the dreamscape once lucid. The participants were required to meet a minimum requirement of three lucid dreams per week and the ability to record a minimum of four lucid or non-lucid dreams in their dream journals per week.

Additional selection criteria included that the participants were 18 years or older and that they be free from any addiction or significant mental health issues, both in the past and at the time of the study. Addiction and mental health concerns can affect dream content and recall. Further, the activation of potentially high-emotion states during the study could be dangerous for participants with addiction or mental health concerns



(Kothe & Pietrowsky, 2001).

Participants were selected using an advertisement (Appendix D) that was posted to the online forum *lucidity.com*, where there is an active community of people interested in exploring lucid dreaming. Of the individuals who responded to the advertisement, two were selected based on their ability to achieve a lucid dream state. These individuals were also chosen based on their ability to consistently recall their dreams each week and to record these dreams in a dream journal. Only two individuals were selected because of the projected duration of this study and the number of dreams that would need to be analysed in depth per individual.

These individuals self-assessed to have no significant personal history of mental illness. They considered themselves to be healthy, non-smoking, and drug-free, and agreed to participate in the study as volunteers. They were instructed not to ingest illegal drugs, alcohol, or caffeine the day prior to and during the study so as not to affect their ability to have or recall dreams as well as to avoid influencing dream content or emotions during the study. The overall intention in selecting participants was to attract participants who were interested in modifying their general wellbeing and who were free from any addiction or mental health concerns, as these conditions affect the dream content.

One of the hallmarks of a qualitative research design is the study of a lived experience from the perspective of those who have had the experience (Creswell, 1998). Another hallmark of qualitative research is that it is not unusual for qualitative studies to be performed using a small sample size (Creswell, 1998; Ritchie, Lewis, & Elam, 2003). One reason why qualitative work is done using small samples is due to diminishing returns with respect to data collection; that is to say, while more information may be

found by increasing the size of a sample, the value of the information obtained does not necessarily increase at a linear rate commensurate with the increase in sample size (Bacchetti, Wolf, Seagal, & McCulloch, 2005). The tendency for emerging themes in qualitative data to reach diminishing returns is sometimes referred to as ‘data saturation’ (Guest, Bunce, & Johnson, 2006).

In this study, information was collected regarding dreaming, a highly personal and individualistic event. The use of a small sample size allowed for high quality and thoughtful reflection on each participant’s individual experience. It also allowed for a deep exploration of the topic of interest, thereby creating valuable pieces of knowledge that were evaluated and understood using detailed analysis within the narrative analysis framework. Doing so allowed for the necessary detailed exploration of dreams as a method for intentional behaviour modification someday in the future. With this level of detail in mind, the participants in this study were carefully chosen using purposeful sampling (Neuman, 2009) to ensure that they had the dream recall and lucid dreaming skills necessary for the purposes of the current study.

### **3.5 Data Collection Procedures**

The purpose of the data collection was to provide material for addressing the following core research question: Can dreams be used to intentionally modify participants’ waking behaviours? Narratives from the participants’ lucid and non-lucid dreams were elicited as a means of exploring how dreams impact behavioural changes within the dreams and in the waking world. The data came from three sources which constitute the major data collection procedures in this study: a pre-study interview with each participant, dream activity followed by dream journaling on the part of each

participant, and a post-study interview.

As part of the pre-study interview, I worked with the participants to establish information about their current lives, behaviour goals, and personal definitions of behavioural change. The focus of the questions was on each participant's personal definitions of behavioural change and on defining his personal behaviour goals. By asking these questions, I was able to listen to the life stories of participants, how the behaviour affected their lives, the emotions that surrounded the manifestation of the unwanted behaviour, how the behaviour was triggered, and what the participants thought it would be like have a life without the unwanted behaviour.

The pre-study interview was followed by sessions of lucid and non-lucid dreaming by a participant. The participants were instructed to record seven to ten nights of lucid and non-lucid dreams in a dream journal, along with any specific feelings and/or prominent sensory experiences. The participants used their own preferred methods of lucid dreaming techniques for falling asleep and entering the lucid state. Ultimately, the lucid dreamer would interact with the dream world and with the dream characters and then record what occurred in the dreams and in the waking world in the following week. The final data collection stage was the post-study interview, which was used to explore what the dreams meant to each participant and how he felt the dream or dreamlike experience had affected him. Having each participant evaluate his dream and dream journal enabled me to discover how the three elements of profound dreams (emotion, narrative, and reality) were associated and if the dreams had any impact on the behaviour of each participant.

### 3.5.1 Pre-Study Interviews

The pre-study interviews took place either by telephone or Skype since the participants were located in different parts of the world. Participants were taken through a set of questions concerning each their pre-study mentality and personal definitions of behavioural change. In addition, this interview included several questions to record the participants' opinions and critiques. An initial phone interview was conducted with each participant individually. Each interview lasted 45–90 minutes. I asked each participant about his skill level in lucid dreaming and explained the study procedures. The pre-study interview questions were designed as open-ended questions to help explore each participant's behaviour goals and emotional triggers. The interviews were audio-recorded.

To conduct effective interviews, a researcher must create an environment of genuine interest and desire to understand the participant's experience (Patton, 2002). The questions I asked were intended to allow the participants to explore their own experiences without being led, pushed or influenced in a particular direction. Since there were no fixed or correct answers, the participants could freely engage in a self-inquiry using their own words and descriptions (Patton, 2002). The open-ended questions were therefore carefully constructed before the interviews and I engaged each participant with empathy and interest when asking the questions. If a participant found it difficult to answer a question, I rephrased the question to help the participant explore their experience more fully. As much as possible, the same questions were given to each participant in the same order. However, there was some flexibility in the interview schedule so that certain aspects could be clarified and emerging information could be explored in more depth.

The participants were given as much time as they needed to answer each question. The questions were intended to help identify and clarify, for the researcher and the participants themselves, the participants' personal goals and individual definitions of behaviour and behavioural change. A first set of questions was designed for the pre-study interview to help clearly identify the behaviours the participants wanted to work on and how those behaviours manifest themselves in their lives. A second set of questions in the pre-study interview was designed to help clarify and define what behavioural change meant to each individual participant. A copy of the pre-interview questions can be found in Appendix B.

### **3.5.2 Dream Journals**

Schredl (2002) established that there are three different ways of recording dreams for dream research: a questionnaire, a dream journal, or a laboratory awakening. Schredl (2002) believed that questionnaires posed a greater risk of inaccurate recall due the time lapse between the dream event and the dream recording. Dream journals and laboratory awakenings reduce this problem by recording the dreams moments after they occur. However, some participants may increase the loss of dream recall by waiting until morning to record the dreams rather than recording them immediately upon being woken, as would occur in a laboratory (Schredl, 2000). All these methods are subject to difficulties with doing research that relies on subjective memory and accurate recall of dream events that quickly dissipate in memory (Schredl, 2000, 2002, 2003). Since laboratory awakenings were unavailable for this study, I chose to use dream journals as the primary method for the participants to record and relay their dreams.

The participants were asked to record their dreams in dream journals for seven to

ten nights. The participants then submitted their dream journals to me and discussed anything they found significant or relevant in that week's dreams in their post-study follow-up interviews.

### **3.5.2 Post-Study Interview**

The post-study interviews were also conducted by Skype or by telephone. The interviews focused on each participant's personal impressions of their experiences of the outcomes during the research period. The post-study interview consisted of eight open-ended questions (Appendix C). The use of open-ended questions created a guided review of participants' experiences while providing an opportunity for the participants to share their lived experience in detail. Participants were asked the same set of initial questions, but the follow-up questions were based on participant responses. The open question technique allowed for clarifying statements exploring emerging information regarding each participant's narrative. Participants were given as much time as they needed to answer each question. Post-study questions provided an opportunity for the participants to describe the experience and communicate progress toward personal goals and any perceived behavioural change. I took written notes and audio-recorded each of the sessions for later analysis.

The timeframe for the entire study was a total of 21 days of working with the participants. This included all stages, from the pre-study interview and recording of the dream journals to the end of the post-study interviews.

### 3.6 Data Analysis

Narrative analysis can take varying forms in a narrative design (Riessman, 1993). The focus can be on the more technical aspects of story such as the structural elements, form, and factual content of the story, or the analysis can take a more complete and humanistic approach, looking at the story and its potential meaning as a whole. The voice and intention of the storyteller and the context of the story can also be investigated. Within this study, narrowing the analysis to align with the study objectives was important. Therefore, the narrative analysis for this study was framed to attend to how the three elements of dreaming were triggered, manifested, and influenced the dream content or behaviours inside the dream state; to determine any relevant emerging themes; and to determine if the participants' dreams had any behavioural influence on their waking lives. Taking into consideration how the three elements worked within the dream-state, in addition to how the dream narrative itself affected the dreamer, the data analysis contained both a structural analysis and a contextual analysis of the data. This was done by creating a framework of questions as a starting point for the analysis; as information and themes emerged, the analysis could be narrowed further to the relevant information, categories, and themes that emerged.

The textual data for this analysis consisted of (a) the transcripts of all the interviews; (b) interview notes (field notes); and (c) participants' dream journals. Data from interviews and self-reported information contained in the dream journals were analysed for emerging themes from participants' subjective, individual experiences while dreaming. The analysis was done in relation to the study objectives, including the

influence of the dreams on behaviour within the dream and in the participants' waking lives. When creating a narrative from data, Creswell (1998) outlined several steps that I adapted into the current study for analysing the collected data as a way of distilling essential information and creating a narrative of experiences. The following steps were modelled from Creswell (1998), adapted, and incorporated into the data analysis aspects of this study:

Read the transcripts thoroughly to get a sense of the overall experience;

1. Identify and divide the statements into meaningful components;
2. Group information according to any emerging themes or information that were related, creating clusters of data; and
3. Data clusters were reviewed to carefully extract the essential information related to the experience (Creswell, 1998).

Data analysis occurred during several stages, including simultaneously with data collection and after all of the data were compiled. To develop categories and items for coding the material, *open coding*, *axial coding*, and *thematic coding* were used.

In open coding, the data must be categorized, analysed minutely, and subjected to a thorough reading in order to effectively identify key words, phrases, and themes. As Neuman (2000) described, open coding 'brings themes to the surface from deep inside the data' (p. 422). Once key words and phrases were extracted from the data, I turned to axial coding, in which connections must be made between the key words, phrases, and themes developed through open coding (Glasser & Strauss, 1973; Riessman, 1993; Strauss & Corbin, 1990). Axial coding is essentially a 'second pass' or 'second round' of data analysis (Neuman, 2000). As Neuman (2000) noted, axial coding allows a researcher



to make connections between themes that emerged from the open coding process. Initially, coded observations were cross-referenced for any notable similarities and/or discrepancies and then compared across themes to see how each was either similar or different.

Selective coding was the third stage of my qualitative/inductive data analysis. Selective coding is essentially a 'third pass' through the data to see if the previous codes developed in open and axial coding are sound from a theoretical standpoint. For example, the patterns, themes, and codes developed from the data were examined in the context of the relevant body of literature on dream experiences to see if connections could be made between the data and the literature (Berg & Lune, 2012).

Data from interviews and self-reported information contained in the dream journals were thus analysed for emerging themes from participants' subjective, individual experiences while dreaming; the analysis was done in relation to the study objectives, including the influence of the dreams on behaviour within the dream and in the participants' waking lives. It should be noted that at each step of the coding process, I referenced or quoted relevant transcript and dream journal excerpts to support any emerging themes and findings. The information developed during the coding process was clustered into meaningful categories, such as 'emotional impact', 'behavioural results', and various other clusters that served to distil the results individually and comparatively.

Using the adapted Creswell steps as a broad structure and these strategies for developing appropriate coding, I reviewed the textual data line-by-line in multiple passes. Initially, I read the entire collection of data in its entirety for an overall understanding of its information. I then reviewed the data carefully multiple times in smaller sections,

taking notes, highlighting relevant sections and passages, then grouping these sections together for deeper analysis: to identify themes, to discover the initial codes, common ideas, categories, and themes within the participants' dream journals and transcripts. and to identify any structures, form, or content of the dream that enhanced or manifested any of the three elements of dreaming or provided data that were novel, unique, or contrasting between participants.

I used this analytic process for the entire collection of textual data. For the dream journals (Appendix E) in particular, the data were coded for each individual entry, line by line. Information was also analysed in related clusters to track how aspects related to each of the three dream elements. An evaluation of the impact of the three elements within dreaming was then conducted to see what information emerged from the study with regard to each participant. Potential behavioural changes were considered by looking for any negative, neutral, or positive behavioural shifts that developed out of the narratives or manifested in the waking world after the dreams were gathered through the dream journals and post-study interviews. A negative shift was considered to be a behaviour or emotion that worsened after the study concluded. A neutral shift was associated with no behavioural change (i.e., a behaviour that stays the same), while a positive shift occurred when the behaviour of interest improved or met the participants' goals. Information was also gathered through the post-interview narratives to help clarify if the behavioural shift manifested mentally or physically. Evidence of this is presented in the report for each participant in the results.

Each participant's experiences were evaluated using some or all of the following points as part of the coding framework. When evaluating the participants' dream content

and experiences for any relationships to the dream study objectives, and to see how lucid dreaming succeeded in producing a profound experience or manifested behavioural change for the dreamer I looked at the following factors:

1. Directly-related dream content: Did the dream elements directly relate to any part of the study or participation in the study or show any of the specific study elements? For instance, did any of the dream content show observable content (from the researcher's perspective) that constitutes dream elements?
2. Participant insights about their dream content: Did the dream elements, experience, or emotions mean something to the dreamer within the framework of the study?
3. Participant goals and benefits: The participants each provided information on if, and to what degree, they were able to notice any effect of dreaming on their personal goals within the study and what benefits or challenges they may have experienced.
4. Emerging data: Were there any unexpected experiences, benefits, or difficulties that emerged from participating in the study or that emerged from the dream experiences or content.

After analysing the dream content, I then focused on specific study targets, emerging data, participant goals, and problems or benefits the participants derived from participating in the study. The following questions were used in the examination of the data:

- Did the dream elicit higher than normal dream emotion?
- Did the dream elicit a 'lived experience' containing the target behaviour?

- Did the dreaming experience actually affect waking behaviour?
- Was the dream scene a complete, partial, or fragmented experience?
- Was there a measurable or observable change?
- Was there an observable or reported belief or meaning shift for the participant (even if the behaviour did not change or the change was temporary)?

The credibility of the study was further considered by looking at the study's validity and limitations.

### **3.7 Validity Issues**

The validity of the data and findings in this study were ensured through the use of member checking of the data, as outlined by Riessman's (2008) narrative research procedures. In this study, the goal was to understand a person's experience as told through their personal and behavioural narratives. To achieve this end in a narrative analysis, the nature of a narrative must be focused on analysing the story as told by participant through their words, emotions, and behaviour (Creswell, 2007; Riessman, 2008), all of which create a narrative of the whole experience. In order to ensure that the findings accurately reflect the themes or knowledge gained from analysing the narratives provided by the respondents, Riessman (2008) recommended the use of correspondence as one of the methods to achieve validity in a qualitative narrative design.

Study participants were given the opportunity to review their individual transcripts for accuracy and to ensure that their intended meaning was appropriately conveyed. This is an essential action because, as Riessman (1993) notes, 'It is important that we find out what participants think of our work, and their responses can often be a source of theoretical insight' (p. 66). The participants each stated that the information in

the transcriptions was accurate, and only minor corrections were necessary to remove false starts in the transcripts. The data were triangulated by using various forms of data (dream journals, observations, and transcripts) and further supported by the structural and content analysis of the data. Riessman (1993) noted that the 'structural analysis of narrative can reinforce a thematic analysis [and] achieve triangulation' (p. 91).

Generally, assessing validity in a small qualitative study is crucial. However, it may be fundamentally different from assessing validity in a quantitative study with its basic assumption of inference to a population. Maxwell (1992) suggests "authenticity" as an alternative construct for assessing integrity in a qualitative work, and proposes five areas (descriptive, interpretive, theoretical, generalizability and evaluative) for thinking about validity. In this study, I made concerted and serious efforts at all points to maintain and bring forward the participants' authenticity through their views, words and truths, as these appeared in the data.

Because this study focused on the participants' personal perspective of their dream experience, there was a potential for distortion due to memory loss, subjective focus, difficulty expressing thoughts or emotions, fear of disclosure, or emotional reactions on the part of the participant (Riessman, 2008). While in some qualitative research designs this would be seen as a threat to the validity of the data (Creswell, 2007), in narrative inquiry these issues are considered to be part of the research process and not an obstacle, since the primary consideration in narrative analysis is the authenticity of the participant's experiences. According to Creswell (2003), 'real life is composed of different perspectives that do not always coalesce' (p. 196); Understanding the variation in stories and the potential for multiple points of view meant including all

information as each participant presented it.

Global and thematic coherence were other ways of establishing validity within this study (Riessman, 2008). In global coherence, a researcher constantly refers back to the main goal of the narrative study. In this case, exploring the question of whether dreams can be used to promote meaningful behavioural change in the waking world created a targeted and constant focus to consider. This global focus led to the natural incorporation of the second coherence strategy of thematic coherence. Thematic coherence analyses the content of the narratives to determine emerging and connected themes that occur within and across all the collected data (Riessman, 2008). In this study, the narratives primarily included the interviews and the dream journals.

### **3.8 Ethical Considerations**

Researchers are ethically bound to protect participants from any potential harm that may result from their participation in research studies. For the purposes of this study, several measures were taken to ensure that participation in the study would not inflict psychological, material, or other damage on those who participated. These measures include major ethical considerations used in this study which were as follows: (a) transparency to participants about the study's methods and objectives; (b) careful selection of participants; (c) accounting for any potential risks associated with using the method; and (d) confidentiality of all data. In addition to these concerns, it should be noted that informed consent was addressed in accordance with the UNISA's written ethics committee recommendations and guidelines.

The measures to ensure transparency included informed consent, the assurance that participation was voluntary and that participants were allowed to withdraw anytime,

as well as full disclosure of the purpose of the research methods and study objectives before beginning the study. All communication with all participants was done with full disclosure and honesty. The volunteers each signed an informed consent form and were given information and written statements that they had complete freedom to withdraw at any time from the study. Informed consent and volunteer solicitation notices forms are located in Appendix A and Appendix D, respectively.

The second ethical consideration was the careful selection of participants. The participants all joined the study voluntarily and self-disclosed that they had no significant personal history of mental illness. Participants all considered themselves to be healthy, non-smoking, and drug-free. The participants were not compensated for their participation.

Third, I carefully studied the potential risks associated with participation in the study. These included (a) the potential triggering of nightmare or anxiety dreams, and (b) the disclosure of personal information and feelings regarding goals. To address the first risk, only experienced dreamers were used in the study and the goals were restricted for participants to behaviours involving lifestyle changes. The dreamers were careful not to activate traumatic memories or emotions and only attempted to induce positive experiences through the dream or dreamlike experience. Nightmares are relatively rare in healthy adults (Nielsen et al., 2000); thus, there was a very low risk that nightmares would be triggered as a function of participation in the current study. This risk was further minimized by choosing research participants who were free from a history of mental health concerns and by choosing participants who had no persistent, traumatic, or recent history of adult nightmares.

Each of the volunteers were skilled in dream work and familiar with dreamscapes and their personal emotions typically generated therein. By keeping the behaviour goals, discussions, and topics relegated to lifestyle and personal development with no therapeutic or traumatic goals or memories, the dreams triggered were focused on lifestyle topics. Participants were asked to disclose any anxiety or nightmare dreams and terminate any attempts to initiate a dream for the study if nightmare or anxiety dreams arose. The precautions taken to avoid triggering negative emotions in participants was described in detail in the literature review section of this study.

There was also the potential that the participants would experience some degree of embarrassment or uncomfortable feelings when discussing their personal lives related to their behaviour goals. This was addressed by taking steps to create a safe environment where the participants felt that they were accepted and could speak freely without judgement. The participants were also guided into lifestyle-related behaviour goals and no traumatic or therapy related topics were discussed or used in the study. Participants were also told that all identifying information that could potentially link a respondent back to his information (such as names, locations, email addresses, etc.) would be deleted from the dataset upon completion of all data collection activities. Although I was aware of the identities of each research participant, these identities were kept strictly confidential and not disclosed under any circumstances. The full interview transcripts were not put in the study appendix in accordance with the confidentiality agreement with participants and only relevant quotes were used.

To ensure that all participants' identities were kept confidential at all times, all records were kept on a password-protected computer. All notes and records never used



participants' last names and omitted all identifying information. Participants were given a pseudonym in the description of the data. At no point in the study did any of the participants meet or interact with each other. This was ensured by holding separate Skype and phone interviews; by not engaging in discussion about the other participant; and by keeping all information separate and confidential. All participants were consenting adults over the age of 18.

### **3.9 Limitations**

One of the limitations beyond the control of the researcher was the possibility of physiological effects of naturally occurring chemicals that elicit strong emotions (e.g., adrenaline), which may cause a decline in the effectiveness of any observed behaviour shift once the chemical decreases to normal levels. Another confounding element is each individual's motivation and ripeness for change. As with any therapeutic or behavioural change method, there is a significant increase in results based on an individual's personal motivation (Maddux, 2000). The participants were asked to rate their motivation levels for behavioural change during the pre-interview stage; this was done to determine if there might be any correlation between behavioural changes that occurred or did not occur during the study and the participants' motivation. However, studies have shown that self-evaluation may be unreliable in determining an individual's actual participation level or persistence in behaviour change (Kuiken et al., 2006).

Additionally, because this study used a qualitative method, the results of this study cannot be generalized to a larger population from which the sample was drawn. This is a limitation associated with all qualitative research (Neuman, 2009). To extrapolate the findings from a sample back to a population would require the use of

quantitative protocols, which was not the intention of this study. This initial study was simply to explore the narrative qualities and possible combinations of the components of a potential dream method.

Certain potential limitations of this study relate to its structure. For example, the sample size and criteria for selection may have been an issue. The sample came from a small and self-selected segment of the population. These were individuals who are skilled in lucid dreaming and who offered to participate in this research. While this study was exploratory, the ultimate questions related to affecting behaviour through dreaming concern the general population. However, because of the research sample's special characteristics, the findings here may not be applicable to the general population who would lack interest or skills dreaming or lucid dreaming. Further, there is a potential issue of researcher bias. Although I am trained in the dream literature and dreamwork research, my role as an independent and sole researcher in this project may have allowed me unwittingly to engage my intellectual and emotional biases in the research process.

Further potential limitations included that the gender percentage in the study was 100% male; no females volunteered for the study. There have been multiple studies on the differences between male and female dream recall (Schredl, 2000, 2002, 2003), dream content (Krippner & Weinhold, 2002), and how dreams are recounted (Tedlock, 1999). Some of these studies reflected a stronger recall ability in female participants, initially attributed to a higher level of interest in dreams on the part of females (Schredl, 2000, 2002, 2003). This conclusion has since been called into question, as other studies have shown that other influences can affect interest in dreams. For example, the level of attention paid to the dream during waking hours and whether the ability to actually recall

dreams can spark additional interest (Schredl, 2000).

Gender differences may also affect dream content, which has been shown in some studies to contain a higher percentage of aggressive or violent themes in male dreams and friendly interactions in female dreams (Krippner & Weinhold, 2002). However, dreamers are more often the object of the aggression than the aggressors, and this aggression is likely attributed to factors in waking life and cultural factors, not necessarily to the inherent qualities of gender (Domhoff, 2005).

In this study, a completely male population may affect the evaluation of the elements within the lucid dreams. However, without a comparative study with a sample of females, no assessment or theories can be determined regarding the real effect of having a single gender study sample.

Although further research could be performed on the psychiatric and traumatic healing applications of lucid dreaming, this particular study (as the initial research model) does not contain the controls or support necessary for mental health applications or testing. Therefore, it is important to note that this research is not meant to be used in cases in which (a) an individual is experiencing trauma or mental illness, or (b) an emotion-based experience could cause harm. Rather, this study was focused on basic lifestyle-based behaviour and belief changes.

### **3.10 Conclusion**

The purpose of this chapter was to describe the methodology used to investigate the core research question in this study. First, there was a description of qualitative research design and why a narrative analysis approach was appropriate, given the nature of the research question. After that, the role of the researcher within the current study was

explained. Participant selection processes were then discussed. Information on data collection through conducting and recording interviews with participants, and participants' submission of recording of dream journals was elucidated. Next, the various procedures used to analyse the qualitative data were detailed. And finally, the validity issues associated with the current study and the study's ethical considerations were discussed. The methods described in this section were implemented in their entirety and without notable difficulties. The following chapter presents the participants' experiences and the findings of the study.

## **Chapter 4: Findings**

### **4.1 Introduction**

The purpose of this study was to explore through a narrative analysis method whether dreams can be used as a way to create behavioural change. The aim of the study was to begin the journey toward identifying an effective method of producing behavioural change using guided dreaming. Data collection included the pre-study interviews, the recording of dream journals by the participants, and the post-study interviews. The data collected allowed respondents to present both a first-person participant perspective of living out the dream experience and a third-person observer perspective where the participant, upon waking, analysed the meaning of his dream experience.

This chapter begins with a brief narrative of participant's backgrounds, behaviour goals, and motivation levels, after which the chapter is organized based on observed themes. Study data were analysed to determine (a) any relevant emerging themes; (b) to explore the relationship of the three characteristics of emotion, narrative, and reality in the participants' dreams; and (c) to determine if their dreams had any behavioural influence on their waking lives.

### **4.2 Participant Background and Behaviour Goals**

#### **4.2.1 Participant A: Paul**

Paul was a man in his early fifties, a self-described 'experienced dreamer' who recalled four to six dreams each night, but who could reach up to thirteen recalled dreams per night, thus making him the more consistent in terms of dream recall between the two participants. Paul described his lucid dreaming ability as 'advanced'. He was a seasoned

lucid dreamer who had been practicing for many years. He stated, 'I have been lucid dreaming all my life'. He reported having approximately four to five nights of lucid dreaming on average each week. Paul was largely self-taught and acquired his lucid dreaming skills using techniques from various books and videos. Paul was interested in moving from personal lucid dreaming into participating in advanced lucid dreaming for research studies. This dream study was the first that he had participated in, but he was interested in applying for other studies involving lucid dreaming.

Paul was confident in his personal and professional abilities and felt that his life was in good order. He had no persistent issues or behaviours that were immediately obvious to him that could be worked on during the study. After some exploration, Paul decided that one of the behaviours he was interested in working on in his life was having 'second thoughts' in a work-related area, second thoughts that led him to not follow his instincts when it came to purchasing publicly-traded stocks. This 'second guessing' happened when he looked at stock market charts that appeared too good to be true. Paul seemed confident, open, and a good conversationalist who did not display or indicate any verbal hesitation or concerns about study participation. Paul successfully explored some of the behaviours he was currently focused on in his life and began to identify their features, triggers, feelings, and associations. The pre-study interview slowly uncovered the mind-set involved with his behaviour of withdrawing from taking action on a particular trade and gave Paul a clear understanding of his goals for this behaviour in the dream study.

According to Paul, his behaviour had several complex and conflicting signals that competed against one another when he attempted to make a decision regarding a trade.

There was the real possibility of losing money, which did not seem to bother him on smaller trades, but as the amount of risk increased, so did his anxiety level. While Paul found this protective response toward risk to be reasonable, he also found that he experienced an additional fear of actually succeeding. Paul described how he could use his instinct to identify a small percentage of charts that would yield a high profit, but when he identified these charts, fear and second-guessing would overwhelm his ability to deal with the trade in a neutral manner. These reactions would lead him to watch the trade unfold and evaluate his initial assessment rather than acting on the trade.

Paul's initial instincts were frequently correct, but the times when he was incorrect would reinforce his habit of second-guessing himself. Paul stated that he wanted to approach the trades neutrally by looking at the data and following his instincts, rather than by allowing the emotion of fear (of both losing and succeeding) to make the choice for him. Paul recognized that he would not be able to completely remove emotion from the trades, but he believed that with more neutrality, he would be able to act on trades more accurately. This neutrality would allow him to make trades based on his knowledge and trained instincts. Table 1 summarizes Paul's presenting issues, attributed cause, and behaviour goals.

Table 1. *Participant A (Paul), Pre-Study Responses*

<b>Area of Inquiry</b>	<b>Response</b>
<b>Issue</b>	Second thoughts/Second guessing and hesitation when evaluating trading charts.

<b>Attributed cause</b>	Fear of making the wrong decision with additional fear of success.
<b>Behaviour goal</b>	Emotional neutrality in choosing trades
<b>Physical sensation located</b>	Chest, shoulders, and head

#### 4.2.2 Participant B: Thomas

Thomas was a man in his early thirties, self-assessed as having an average of 10–12 lucid dreams per month and the ability to recall at least one regular dream each night. Thomas described himself as actively developing his lucid dreaming ability, but was not able to ascribe his ability to a defined level. He was also just beginning to become familiar with the lucid dreaming community and the community’s goal to promote intellectual and experiential exchanges with other lucid dreamers. Thomas had a strong interest in lucid dreaming and was actively and diligently working on honing his skills. Thomas was open and direct in all of his responses when I questioned him. He was easy to talk to, open with his feelings, and willing to delve into areas that would improve or provide exploration of his dreaming abilities and personal development.

The pre-study interview provided data on Thomas’s realizations of his behaviour triggers, definitions, and associations. He actively worked toward self-understanding and was completely open to expressing both positive and uncomfortable feelings during the session. Thomas was fully engaged and worked openly, even when feelings of nervousness or discomfort were triggered. Reflecting on the pre-study interview, Thomas expressed that he opened up more than he normally does in conversation and that he felt



that he had accurately described the challenges he faced with his chosen behavioural response.

Although Thomas was able to use intellect, self-reflection, humour, insight, and self-confidence in most areas of his life, there were a few select situations in which he was triggered into feeling nervous and self-conscious. In these instances, he felt the triggered emotions caused him to withdraw, hold back, or created a difficulty in communication. Thomas believed that if he was able to draw on behaviours that reflect confidence and courage, he would be able to overcome and move through these temporary situations of discomfort and accomplish various life goals in a more consistent and accelerated pace. Namely, he wanted to improve his self-confidence and feel more self-assured around women.

Various emotions and levels of emotion could be observed during the pre-study interview, mainly when the participant showed feelings of anxiety or nervousness because he was being put on the spot to answer questions. Whenever this happened, the triggered emotions became uniquely valuable to the study because they were part of the behavioural response that Thomas had chosen to discuss. The presence of these emotions gave a researcher, the unique and prized opportunity to explore Thomas's behaviour triggers and emotions as they occurred.

For Thomas, the feeling of being anxious or nervous manifested as what he perceived to be a difficulty in communicating clearly. However, even when these emotions were triggered, they did not affect his persistence, openness, and personal insight during the interview. At no time during the study was there any indication of the participant wanting to withdraw from the study or to hold back. Thomas simply

acknowledged that the emotions had been triggered and were having the effect of creating difficulty in communicating. Thomas maintained his positive, open, and motivated qualities in relating his experiences at all stages and in all sessions of the study. Thomas indicated that much of his anxiety and nervousness abated as the pre-study interview continued, but these emotions still surfaced on occasion throughout the study. The valuable information found in the unfolding of information and emerging personal discoveries is described next. Table 2 summarizes Thomas's presenting issues, attributed cause, and behaviour goals.

Table 2. *Participant A B (Thomas), Pre-Study Responses*

<b>Area of Inquiry</b>	<b>Response</b>
<b>Issue</b>	Participant withdraws, experiences nervousness or anxiety, has a loss for words, or becomes abrasive when triggered.
<b>Attributed cause</b>	Perceived pressure from self-judgment and external judgment in various situations
<b>Behaviour goal</b>	Manifesting courage and confidence in triggered situations, including in potential romantic situations with women. He will 'flow' in triggered situations, showing confidence by direct and uninhibited action and communication.
<b>Physical sensation located</b>	He feels tightness in his chest.

### **4.3 Thematic Findings**

In this section, each theme is identified and defined, examples from the data are presented, and that is followed by a discussion of the relationship between the theme, existing literature, and study objectives. It is important to note that the results have a significantly higher number of examples from the participant Paul than from Thomas. This is due to multiple factors, including the fact that Paul was a more experienced lucid dreamer and therefore was able to record more dreams during the study than Thomas. In addition, Paul provided more detail in both his dream journals and in his post-study interview, where he described the events, emotions, and his interpretations and personal meaning of his dreams. This additional information from Paul provided more data to analyse and provided a greater number of relevant examples.

Six main themes emerged from the narrative analysis of the data that related to the category of emotion: (a) interactions with dream characters (with the subthemes of real versus imaged dream characters and emotional engagement with dream characters), (b) waking life emotions in dreams, (c) narrative structure of dreams, (d) sensory and physiological stimuli in dreams, (e) lucid dream manifestations, and (f) behavioural effects.

#### **4.3.1 Theme 1: Interactions with Dream Characters**

Both participants, Paul and Thomas, had dreams with imaginary characters as well as characters with real-world counterparts, such as the participants' children, parents, and friends. This reflected how waking-life relationships enter into and affect the dream content. Further, the analysis showed the impact of these real and imagined relationships on the participants' dream behaviours and emotions, as discussed in the subthemes.

#### ***4.3.1.1 Criteria***

This section includes all instances in which dream characters appeared in the dream journal entries that were recorded by the participants. The characters were then analysed to differentiate the manifestation as either a dream representation of a real person (real) or as an imagined dream character with no known real-life counterpart (imagined).

#### ***4.3.1.2 Description of Results***

Participants frequently reported interactions with dream characters, both real and imagined, and described the emotional and behavioural effect these characters had on them both within the dream and while recounting the dream. The first aspect of the theme involved the identification of real versus imagined dream characters and the impact of those character interactions. The second aspect that emerged was the actual emotional engagement with the dream characters, which took two forms: (a) how the characters' interactions triggered emotional and behavioural responses within the dreamer, and (b) how the dreamer would be empathetic or reactive to the emotions of the characters themselves. The interaction with the dream characters related to the various ways in which dream emotions affected the participants' dream behaviours. This included both the variety of emotions and the different levels of emotional intensity that affected the participants' behavioural reactions, as well as occasions in which waking-life emotions would carry over into the participants' dreams.

#### ***4.3.1.3 Subtheme: Real Versus Imagined Characters***

Both participants, Paul and Thomas, had dreams with imaginary characters as well as characters with real-world counterparts, including children, parents, and friends. This reflected how waking-life relationships enter into and affect dream content. Dream characters appeared a total of 28 times in the 37 dreams recorded by the participants in their dream journals. Although both Paul and Thomas were sometimes alone in their dreams, the vast majority of both Paul's and Thomas's dreams contained interactions with dream characters. For Paul, most of those interactions involved conversations. Solitary dreams without the presence of dream characters were relatively rare. There was one dream in which Thomas was engaged in a solitary dream narrative that contained no characters but did contain the voices of people for a moment. Overall, Paul had four instances of dreams which started out as solitary activities, such as collecting items and fixing a machine, and Thomas had two dreams in which he was alone in the desert. Notably, the solitary dreams tended to be more bizarre than the dreams that contained people. Both participants had dreams that started out as solitary but then incorporated dream characters later in the narrative.

Both participants experienced a higher number of imaginary characters than people from participants' actual waking lives. People from Paul's life included his children, ex-wife, girlfriend, and old friends. These were the most prominent dream characters for him, and they appeared eight times in 21 of his dreams containing dream characters, with the remaining 13 dreams containing only imaginary characters. Similarly, Thomas's dream characters consisted primarily of imagined characters, most

prominently imaginary women and imagined aggressive male figures. Out of Thomas's eight recorded dreams, seven of those dreams contained dream characters, and three dreams contained people from Thomas's real-life relationships. The two real-life people appeared in Thomas's dream journals: his mother and a friend. Thomas's dreams consisted of two dreams that contained his mother, one dream that featured a group of male aggressors, one dream featuring 'cops' of an undisclosed gender, and the remaining dreams contained various unfamiliar girls and women. Paul and Thomas both reported dreams that included both real and imagined characters:

**Paul (real character reference):** I see my daughter so [I] put her on my shoulders and bounce with her.

**Thomas (real character reference):** My mother kicked me out of the house or something because we were arguing, so I went to stay at a new apartment.

**Paul (imagined character reference):** In a shop and after something that is not in the shop so they show me a catalogue of goods.

**Thomas (imagined character reference):** I'm on a roof with some girl explaining to her why she should fly the helicopter she owned.

#### ***4.3.1.4 Discussion of Real Versus Imagined Characters.***

The findings show a mix of the real and imagined characters that played important roles in directing the narrative and influencing the behaviour and emotion of the dream. The number of real versus imagined dream characters and the way in which they were recognized was consistent with the research of Kahn et al. (2000) who reported that dream characters are often recognized by a feeling providing a sense of recognition without necessarily associating the character with a name from the dreamer's waking life.

Dream characters frequently morphed into another incarnation during the course of the dream.

While the dream character types in the present study varied from Khan et al. (2000), the types and patterns of recognition of the dream characters were very similar. Kahn reported that 48% of characters represented individuals known to the dreamer, 35% were identifiable by a social symbol (e.g., policeman, doctor) or an abstract of a known individual (reminds the dreamer of...), and 16% were wholly novel. This study also found that character recognition was not always made by any direct means, rather by a sense of 'just knowing' (Kahn et al., 2000). Dreamers often reported that a dream character looked very different from the real-life counterpart; however most stated that in the dream-state, something other than visual appearance made character identification easy and certain (Kahn et al., 2000). The inclusion of representations of real people from the participants' waking-life relationships supports the findings from the continuity hypothesis that waking-life content is reflected in the dream content (Domhoff, 1996).

The participants' dreams were very rarely solitary activities and the vast majority of dreams contained relational interactions with either real or imagined dream people. This indicated and provided examples of how the dream characters were a primary source of behavioural or emotional responses elicited within the dream.

The interactions with both the real and imagined dream characters included conversation and physical contact. The physical touch in the participants' dreams was gentle, producing pleasure (hugging kids, kissing partner); there seemed to be no touching of characters that was confrontational, except where Thomas pulled his mother away from a conversation to get to a hospital.

However, there was the threat of bodily harm to the dreamer (Thomas's potential for getting shot) and the threat of harm to the dream characters (Paul's dream of various characters who were deformed or who experienced an injury in front of him). The primary method of interaction with the dream characters for Paul was conversational. This displayed a relational quality and produced an exchange of information that, at times, solved a complicating action through speaking it out, such as when Paul was looking for an item and the shop keeper showed him various catalogues or when Thomas was trying to convince his mother that he was dying and needed to be taken to the hospital.

The vast majority of the participants' dreams contained relational interactions with either real or imagined dream people. Information regarding imagined and real dream people, as reported by participants, provided data that substantiated the idea that dream characters were a primary source of behavioural or emotional responses elicited within the dream providing important information to the three dream elements of this study's inquiry. There were some specific ways in which the elements of narrative, emotion and reality were triggered by dream characters including conversation, mere presence in the dream environment, and physical contact. Interactions with dream characters manifested the full spectrum of emotions and the different levels of emotional intensity that would sometimes carry over into the participants' waking life. These conversational and physical interactions generated emotional and behavioural responses that are discussed in the next subtheme.



#### ***4.3.1.5 Subtheme: Emotional engagement with dream characters***

The participants reported significant emotions manifested during interactions with dream characters. Emotional engagement with the dream characters took two forms: (a) how interaction with the dream characters triggered emotional and behavioural responses within the dreamer and (b) how the dreamer would be empathetic or reactive to the emotions of the characters themselves. Paul recorded multiple instances of noticing and reacting to a dream character's emotions:

**Paul:** I am in a room with a man and trying to do a test. He keeps saying I am wrong but gives no clues. He gets annoyed and says, 'Just look at the patterns'.

**Paul:** It is steep and so I get out [of the truck] as I don't feel safe. A man is thrown out of the front and hits his back on a fence. He is bent like a staple but is ok. He looks amused by my concern.

Paul was so in tune with his dream characters' emotions that he sometimes noticed how their entire appearance changed according to the emotion they were experiencing:

**Paul:** I see my daughter, so [I] put her on my shoulders and bounce with her. She is scared but trusting and soon has a big smile on her face.

**Paul:** All had very strong features and each had a complaint. They started coming in one at a time and speaking their minds. Their faces got more detailed and the features more pronounced as they spoke, and their teeth got less and less as they were speaking.

For Thomas, the majority of the interactions with dream characters had less to do with noticing the dream characters' emotions and more to do with the responses they elicited

within Thomas. In the two dreams that contained his mother, Thomas experienced her as an antagonistic dream character that upset him.

**Thomas:** I jumped up and killed the snake and called for my mother to take me to the hospital. She was procrastinating [by] stopping at a supermarket. She tried to convince me that the snake-bite wasn't all that serious. I told her that I'll probably die and so did some guy that worked at the supermarket. We walk outside and my mother is talking to some lady that lives in our building, and I have to pull her away to leave.

**Thomas:** My mother kicked me out of the house or something because we were arguing, so I went to stay at a new apartment. While en route to the new place, some guys I knew saw me and told me not to walk around there anymore. I said something like 'that doesn't pertain to me,' and one of the guys starts to shoot a gun at me. I get scared and realize that I don't want to die as much as I thought I did and run away.

The emotional intensity that manifested during interactions with the dream characters ranged from mild to extreme. There were even some instances in which there seemed to be a lack of, or reduced level of reactive response considering the circumstances. Paul was emotionally calm, content, or happy in many of his dreams. For instance, he reported, '[a] feeling of acceptance and that things were all right'. Even when his dreams were potentially stressful, such as those with tests or watching someone being thrown into a fence, Paul's levels of stress and concern did not elicit high degrees of over-reactivity; instead, he appeared to maintain an emotional equilibrium with a comfortable level of emotional reaction for each circumstance. However, there were

situations in which Paul appeared notably calm in narratives that would normally be categorized as distressing or extreme, but which did not prompt feelings of fear or distress in Paul, as noted in the following example:

**Paul:** Three females were lying down and one was annoyed as her head was not connected to her body. She was under a sheet, and I put it back on for her. They were all happy at this.

While the majority of the participants' dreams elicited an emotional response that was within a range proportional to the stimuli, Paul and Thomas each experienced a few dreams with a high level of emotional intensity. For example, Paul had an emotionally intense dream in which his friend was about to be crushed by a truck.

**Paul:** In front of me the truck cab gets right against the wall and my friend is there. He is now crushed and bleeding badly. I pick up a rock and start bashing against the truck sides and it moves away. Next, I find my friend in the ambulance and he is bleeding and in great pain. He shows me his hand and there are a few fingers missing. I talk to the men in charge and look around.

Thomas also had various emotions within his dreams, ranging from calm to distressed. In some cases, particularly Thomas's, the dream journal or interviews lacked clear indicators that could be used to help determine if an emotion was present and simply unnoticed or not recorded, or if the emotion was not actually present. Thomas also had a selection of emotionally intense dreams or dream moments, but the intense emotions resolved or dissipated to calmer emotions from one scene to another, as the following dream journal excerpt illustrates:

**Thomas:** One of the guys starts to shoot a gun at me. I get scared and realize that

I don't want to die as much as I thought I did and run away. When I get into my house, I want to play games but there is some girl there. She's cleaning the house or something and asked me where something was. I told her to check the bathroom.

#### ***4.3.1.6 Discussion of Emotional Engagement with Dream Characters***

Study data on emotional engagement by participants with dream characters were consistent with the literature showing that dream characters elicit various feelings in the dreamers (Kahn & Hobson, 2004; Kahn et al., 2002). Participants reported a full range of emotions during interactions with both real and imagined characters. Emotional content associated with interactions was often easier to recall than details about the dream content itself (Neilsen et al., 1991). Participants reported that interactions with dream characters triggered emotional and behavioural responses inside the dream, eliciting empathetic or reactive feelings and behaviours. This finding is consistent with key points from the literature, which support the study framework on the significant relationship between dreams and emotion, how dreams are perceived as real by the dreamer, and how the dreamer relates narratives (Kahn & Hobson, 2004; Kahn et al., 2002).

In relation to emotion as one of the three elements of dreaming; The primary emotional stimuli for the participants were the interactions with their dream characters. The ways in which these emotions were evoked or triggered were consistent with their waking life temperament in situations requiring a behavioural response and consistent with the current or past feelings associated with the person being represented in the dream. For instance, this was represented in Paul's affection toward his daughter and his affection toward his ex-wife as well as Thomas's casual interaction with his friend and

stressful interactions with his mother. This was consistent with studies of dream characters that also found that emotions were evoked by interactions with dream characters (Kahn et al., 2002).

According to a study by Kahn and fellow researchers (2002), emotions are almost always evoked by dream characters. Further, it was found that the characters were often *identified* by the feeling first and appearance second (Kahn et al., 2002). This indicates that the dreamer may have been experiencing an emotion that possibly carried over from waking life which incorporated the appropriate stimuli into the dream scene to fit the emotion. The emotions that were most associated with known dream characters were feelings of affection and joy, which occurred 81.4% of the time (Kahn et al., 2002). This was similar to Paul's results, who tended to enjoy interactions with the dream characters whom he knew as real people. The fact that Paul's emotions remained generally level and he had reasonable reactions to even highly emotional situations presented in his dream content suggested that he was displaying emotions which were in line with what Paul described as his temperament in waking life. The possibility of the reactions being the participant's temperament or habitual reactions was also supported by Thomas's experience of anxiety and stress when encountering his mother as a dream character, as the stress was also reflective of his current habitual reactions to his mother in his waking life. So, while the presence of the specific dream characters who represented waking life people evoked an emotion consistent with the participant's feelings toward that person, the interaction also had a tendency to evoke a response or feeling that was consistent with the overall emotional state of the participant.

Participants experienced the full range of human emotions consistent with their

waking state temperament, and it was noted that the intensity of waking life emotions influenced dream content. This finding is consistent with studies that have shown that waking life emotions impact dream emotions (Domhoff, 2003; Van de Castle, 1994). Waking life stimuli which do not carry an emotional impact are less likely to appear or be incorporated into a dream (Schredl, 2003), while waking thoughts right before sleep that include emotional concerns are more likely to be incorporated into a dream (De Koninck & Brunette, 1991). There is a delicate balance between how intense an emotion must be felt in order for it to enter a dream state and the intensity at which the emotional system needs to shut down or the dreamer self-awakens in order to recover (Gackenbach & Schillig, 1983; Levin & Nielsen, 2007).

Emotional burnout is likely to be triggered at different intensity levels for different individuals (Benedetti, 1999; Gackenbach & Schillig, 1983; Levin & Nielsen, 2007; Woodward, 2008). A person who is sensitive to stress or to being overwhelmed may feel emotional burnout at a lower threshold than someone who is used to activities with high adrenaline or constant high-emotional states. These emotional stress factors may also have had an effect on the individual's ability to produce a lucid dream and recall non-lucid dreams. Paul's emotional level of intensity during interactions with dream characters was moderated by his level of empathy and awareness of his dream characters' emotions.

The dream narratives with characters created a more habitual reaction when populated with real people represented as dream characters, although the imaginary interactions showed the same concern toward others. This confirmed the importance of emotion as one of the three elements of dreaming and also indicated that dream

characters may be an essential component of triggering emotion, guiding the direction of the narrative or increasing the level of reality in the dreamscape. The dream characters played an essential role in both eliciting emotion and also played a role in crafting the dream narrative as the story, which is discussed in the Narrative Structures theme section. As dream characters elicit emotions connected to their waking life counterparts, this consistent and repeatable element may be of use for a lucid dreamer as an additional tool to manifest a desired emotion or setting in the dream by attempting to include the specific dream character in the intended dream narrative.

### **4.3.2 Theme 2: Waking Life Content Carried into Dreams**

#### ***4.3.2.1 Criteria***

This section includes all dream content that was noted that could be identified as related to the participant's waking life, including their hobbies, frequently visited locations, interests, people, and objects. Waking life emotions, behaviour, and any content that the participant believed was waking life content that appeared in their dream was also considered.

#### ***4.3.2.2 Description of Results***

The participants' waking-life emotions, as well as waking-life interests, carried into and influenced their dream content. Paul had 11 dreams related to specific waking-life interests, including three about cycling, seven about mechanical repairs, and four about fishing. In some cases, those interests elicited feelings akin to the ones he was experiencing in his waking life; however, in many cases, those dreams then evolved into different feelings and narratives. Thomas's dreams also reflected his waking life insofar as they featured his relationship with his mother and his personal interest in finding a

relationship with a romantic partner. Additionally, Thomas's dreams reflected his waking-life emotions, such as the stress he felt around interactions with his mother.

While Thomas's dreams did not appear to reflect a specific hobby or related interests, his dreams did involve a number of social situations and interactions such as clubs, parties, and gatherings with friends that Thomas indicated were an important part of his life. Multiple different dream girls were also prevalent in four of Thomas's dreams. While the girls themselves were not representations of waking-life female friends or relationships, the inclusion of various girls as dream references was noted as a possible connection to Thomas's waking life behavioural goal, which was to feel more confidence in certain situations with women. The following are a few of the participant's examples of waking-life content:

**Paul (cycling reference):** Next one, suddenly in a European city, I've been overseas quite a lot riding my bike, so I know what they look and feel like and I see this time the buildings, streets paved.

**Paul (mechanical repairs or tinkering):** Trying to fix a small power machine that looked like a chainsaw combined with a weed cutter. It was hard to get it going and at one point a fuel line burst and I caught the spilled fuel in a container and then started to pull the machine to bits.

**Paul (fishing reference):** We decided to go back to sea on our old fishing boat.

**Thomas (social interaction):** I'm at some club or something and some girl keeps trying to sell me something, seems like a big bag of cookies.

**Thomas: (interactions with girl):** I'm at some party with some girl. We're making out on a couch. She's dark-skinned and very pretty. It's going pretty good



but then I keep stopping for some reason. There's a girl standing outside watching us. There are other people here and it seems to be a party. No one else is paying attention to us but this other girl. The girl I'm with tells me that the other girl outside likes me. I tell the girl that is outside watching that I'll be there in a minute.

#### ***4.3.2.3 Subtheme: Emotional Experiential Reference***

The participants' behaviours were influenced by emotions inside the dream state, but the dream state emotions were also able to affect one of the participant's waking life emotions. Paul reported using dream emotions as a tool to shift behaviour in his waking life emotions. Paul expressed two different emotional goals. The first was feeling 'neutrality' with respect to trading. The second desired emotion was a calm confidence, which he also described as a flutter of energy that would go through him. With regard to the second emotion, he was able to both describe and manifest it in the pre-study interview, using his imagination. Paul described the emotional and physical parts of the feeling in detail in the pre-study interview:

**Paul:** I get a nice calm confidence about myself... I am in tune with everything... It's almost a body feeling, chest, head, and shoulders. I feel like it's taking over it's almost like I'm feeling warmth in those areas when you feel quite strong about something... That feeling is almost a flutter, I wouldn't say it's a feeling I would just say feeling seems to be a flutter of energy that goes through you, and causes that feeling.

The positive feelings potentially associated with the emotion were manifested in the dream content in three ways that were distinguishable in the dream journals, in the

post-study interviews, or were identified by Paul. The first was through the representation of 'energy' that Paul described in a few dream scenes. The second was the positive emotions that manifested during Paul's viewing of artwork that appeared in several of Paul's dreams, which he found to be experientially powerful and inspired living moments inside the dream state. The third category was one he identified more metaphorically and symbolically, and it could only be recognized by Paul when he intuitively felt the dream images and feelings were related to his trading.

Paul's pre-study interview goal was to experience neutrality in his trading, with his ultimate goal to be without fear during trades that he believed to be significant. As Paul observed the artwork in his dreams, he did not feel fear, and he generated positive feelings that he associated with how he wanted to feel during his trading experiences. He created an *emotional experiential reference* for himself by using the emotion of the dream experience and linking it to the feelings he wanted to feel during trading. His experience of feeling energy and the various positive feelings associated with viewing the artwork in the dreams changed Paul's original goal and concept of neutrality to a more experientially-based goal from the dream of feelings that would work even better for him when trading. This was significant because it showed that although the participants could generate goals, they could not really know what they wanted (or what would work) until they had an actual successful experience in the targeted situation. For Paul, this was the emotion manifested in viewing the artwork that he wanted to recreate during his trading. He successfully recreated this emotion in what I have called an emotional *experiential reference* for purposes of this study. The emotional experiential reference was a way that Paul actively used dreams for behavioural change. Paul noted how artwork often worked

as an emotional stimulus within his dream state. Excerpts from his dream journals provide evidence of this point:

**Paul:** ...shutter and in the space behind there are works of art. I look at these and each time I move my eyes a little a new work appears. There are as many as I wish to see and they are incredible watercolour works (I would love to paint these as they were truly unique and a little abstract).

**Paul:** Again no screens after I asked for them but more incredible art. The works were unlimited and just kept appearing each time I had my fill of looking at one. Again abstract watercolours that gave a sense and feeling of pleasure in looking at them. Also wonder at the artist's ability to create them.

The emotions experienced in the dream as Paul looked at his dream art changed Paul's perception of what his goal of neutrality meant for him. Paul came to the realization that instead of merely neutrality, he was also looking for calm and positive feelings when making choices about trades, regardless of the final outcome of the trade. He found that the positive feelings associated with looking at the artwork would help him achieve the goal of getting past fearing the future or being ruined by past losses. He believed these positive feelings brought him closer to feeling neutral, a point that was raised in his post-study interview.

**Paul:** Yeah you look at it and there's a sense of pleasure about it. Looking at that artwork, again it's like looking at a computer screen, it's a framed scene and looking at it, I get content, peaceful and pleasure out of it, you know and that's, that's similar with those of the feelings that I want to get to override the negative stuff on the charts and just move on and be objective about it. That's almost the

rubber that washes away the other ones away and then neutralizes it.

**Paul:** So, there's no willpower involved whatsoever, it's simply you just do not want to. There's not even a resistance, it just does not exist, what I'm finding with some of the charts I'm looking at, there's not a lot of exercise doing as well, but there's just a practical one on record keeping but I'm starting to look at a few of these charts and I'm having to bring the negative thoughts forward... they're becoming more and more neutral and they're becoming more and more objective about what I'm saying and doing.

In this post-study interview excerpt, Paul described how the feelings of looking at the dream artwork correlated with the feelings he would like to achieve during trading:

**Paul:** If the overall thing is me wanting to look at charts, screens which are essentially images, but they are images that are framed. They are framed images, pictures I looked at in later dreams were framed images. The screen was a framed image, you know the screen exists inside something but the dreams contained images and it caught my attention and intrigued me. Well, they contain things that make me feel comfortable. You know when I'm trying to look at a chart and get the feelings I'm wanting one of objectiveness, peacefulness, calmness, being objective about it, they all come through integration, all of these sorts of images. The first night that was happening, what was the one? Yeah dream number 7. I'm dreaming one; I'm watching a person, a female trying to leave the room. The room is a projection of the next screen. The lady is approaching what would be a wall with a door in it.

In Paul's non-lucid dreams, charts showed up symbolically, for example in the framed artwork that stood in for the framed computer screen. The feelings associated with viewing the dream artwork were similar to those Paul desired in the pre-study interview. These feelings gave him an experiential reference, which he acknowledged was useful and had a carryover effect into his waking life, albeit temporarily.

The second emotional tool for behavioural change use with dreams related to waking life was the emotion that was generated by Paul during the pre-study interview that he was able to identify physically and then identify as appearing in some of his dream narratives. For Paul, he described the different forms that energy takes in both his dreams and interview conversations. The concept of energy was present in Paul's pre-study descriptions of emotions. Paul stated that energy was a familiar concept in his dreams and often became a powerful dream experience for him. He was consistent with regard to the concept or term of 'energy' in his pre-study interview, dream journals, and post-study interviews. Another reference to energy was associated with the door that then appeared in Paul's description in his dream journal of a lucid dream.

**Paul:** ...so I enjoy the sinking feeling and drift down for a long way feeling the cold and soaking in the energy of the ice... This produced the sinking into the ice, the wonder of looking around and the absorbing of the energy contained in the ice.

This then manifested itself in Paul's experiences in which he absorbed the positive energy, where he had feelings similar to the target emotions. In Paul's original description of the emotion, he does mention the feeling of energy by noting that the feeling is 'almost a flutter, I wouldn't say it's a feeling I would just say feeling seems to be a flutter of energy that goes through you, and causes that feeling'.

#### ***4.3.2.4 Discussion of Waking Life Content***

Dream emotions can carry over into wake life (Busink & Kuiken, 1996; Schredl & Reinhard, 2009; Strauch & Meier, 1996). However, Paul's experience was unique in that there were some instances where he called upon a dream-based emotion to use as an experiential reference in his waking life. He depended on his emotional and cognitive memory of the dream experience to manifest the dream feelings, and once recalled, he positively applied them to his behaviour goals. Paul decisively used the information and was not a bystander of the activation. Specifically, Paul found that he experienced emotions in many of the dreams and that those dream emotions were reflective of the emotions he wanted to feel with regard to his targeted behaviour of trading. Paul then took his experience with those dream emotions and used it as an experiential reference to call upon the emotion in that week's trading. Paul intentionally created a successful waking experience based on his dream content. Doing this took conscious effort on Paul's part, as he had to apply the dream experience to the desired situation. Kuiken and Sikora's term 'spontaneous reminiscence' (1993) is a good description of an original dream that can be used as a reminder to take action on a dream event in the waking world.

While dreams can affect a person's thinking and influence mood the next day, a dream is not often powerful enough to make a person act on it in the morning. Although the studies on decision-making have shown that dreams can and do affect decisions and behaviour (Morewedge & Norton, 2009), this is somewhat different from actually taking action, as action requires effort and is different from automatic, habitual behavioural reactions. So the intentional use of dream emotions for a behavioural objective in waking

life from Paul's experience was a promising result associated with the data collected for this study. Even when that emotion had dissipated, the participant was able to call up the emotion again within the context of an experiential reference to intentionally apply the emotion to his waking behaviour goals.

Emotions from dreams can carry into waking life, even when occurring vaguely (Busink & Kuiken, 1996; Strauch & Meier, 1996), which is what occurred in several instances with the participants. As such, the evidence suggests that an emotional experiential reference was helpful to the participants in the context of being a consciously applied spontaneous reminiscence. As Kolb (1984) stated, 'learning is the process whereby knowledge is created through the transformation of experience' (p. 38).

The biggest surprise from this part of the study was this emergence of an *emotional* experiential reference. I considered that there would be some kind of *behavioural* experiential reference with which a dreamer might create behavioural change by having an experience which would give the dreamer a procedural memory of knowing how to react and provide the dreamer with the conscious confidence of having succeeded in accomplishing the new behaviour and therefore knowing they can do it again. However, Paul's dream experience showed that there is also an *emotional* experiential reference to consider—dream emotions that are recalled can be consciously applied to a behaviour goal or dream emotions which carry into waking life already activated can also be directed and applied to a behaviour goal. This was another potential use of dreams for behavioural change, even if a profound lived experience was not manifested in the dream.

### 4.3.3 Theme 3: Narrative Structure

#### 4.3.3.1 *Criteria*

The relationship between waking life experience and dream experience can be partly understood in terms of narrative structure. This section includes all data related to elements of dream narratives, including: how they are formed, how they might be altered, and how they may influence the participant's behaviour.

#### 4.3.3.2 *Description of Results*

Narratives are one of the three essential dream elements being explored in this study. Four subthemes were found to emerge from an analysis of the actual narrative structures within a dream: (a) time, (b) narrative perspective, (c) narrative setting, and (d) transforming the dream narrative. In the following sections, these subthemes are described first and then a discussion of the entire narrative orientation theme is presented.

#### 4.3.3.3 *Subtheme: Time*

Time presented in the dream content in three ways as: (a) age of participant, (b) historical time period of the narrative, and (c) length of time in which the narrative occurs. Overall, the participants saw themselves realistically and contemporaneously in their dreams. The participants' images of their dreaming selves consistently matched the present-day, real-world representation of the dreamers' self-images. Both participants engaged in dreams without noticing or commenting on any difference in their age or appearance, with one exception. In one dream, Thomas looked into a mirror and saw himself as younger:

**Thomas:** I see the mirror but when I look into it I have this old work uniform on



and I appear younger.

While participants' reports of self-image were representative of their present selves, dream characters with real-world counterparts represented a range of different people from the participant's past and present. While Thomas's dreams only represented the current relationships with whom he was interacting with in his waking life, Paul's dreams included dream characters of people from his past. In some instances, Paul recognized the person as someone from his past; yet, at other times, there was a break in accurate time-reality, because the dream interactions occurred as if the people were currently a part of Paul's everyday life instead of past relationships. Several of Paul's dreams included reminiscences in which old friends he had not seen in years appeared.

**Paul:** I am in a room and there is a local contractor there that is a friend from years ago. We talk and I am happy as he has not talked to me since I separated from my partner many years ago.

**Paul:** Talking to an old friend and ex crew of mine from my younger days when I was fishing.

**Paul:** I see a girl I knew from years back, we talk.

In this case, while the participant's age was consistent in representing his current self-image, the rest of the dream narrative was subject to influences and alterations from past and present memory. Like the participant's age, the historical time period of the dreams tended to reflect their current lives. Even in the case where Thomas dreamed of seeing another planet, there was no indication of being in another historical time period, only an altered, albeit otherworldly, setting. The majority of Paul's dreams were in a

current setting with the exception of one dream where he was interacting with his ex-wife and children, which had some indications of being a recreated setting from his past.

The second aspect of time that emerged was the length of time in which the dream scenes occurred. While the participants were dreaming, they were unaware and unconcerned with the amount of time that had passed and they also failed to notice whether time sped up or slowed down at particular points. Further, they did not capture the actual length of time for each of the dreams or scenes in their dream journals and it is unlikely that the dreamers would be able to accurately gauge the amount of time that passed. The only reference available that provided any orientation regarding the participant's awareness of time's passage was in one of Paul's journal entries. Paul reported having a linear series of lucid dreams on one occasion that lasted for 70 minutes. That event was also recorded in his dream journal ('About an hour till entering dream. Came out of dream at 0520. Dream time fully lucid about 70 minutes'). However, the time span of each dream was not evident from the various lengths of the dream journal entries themselves. Each dream journal entry for Paul averaged four to eight lines of text per reported dream episode, yet there was a collection of five or six dream episodes per night. Thus, the dream journals were not a reliable source for measuring the length of dreams and dream episodes.

#### ***4.3.3.4 Discussion of Time***

The finding that participants' dreams were most frequently set in the dreamers' present age suggests that dream experiences may assist in the realism of the dream by the providing consistency with the participants' self-image in waking life. However, despite recognizing themselves in their current form, there was still a reduced ability for the

participant to accurately recall their autobiographical memory (Kahan et al., 1997; Kahn & Hobson, 2004). For instance, the participants would dream of past relationships and incorporate them into present settings. This inconsistency was hardly noticed by the dreamer, which may also be due to the ability of the dreamer to become absorbed in the moment of the dream narrative (Kahn & Hobson, 2004). Having dreams where the person is the same age and in the same time period (which was the finding in the study results) would be consistent with making the dream a realistic simulation for learning, reacting, and training for waking life responses. This would be useful for behavioural training in dreams because the dreamer would be experiencing the dream as themselves and therefore recording it in their memory with consistent accuracy.

#### ***4.3.3.5 Subtheme: Narrative Perspectives***

These data included all information related to how the participant experienced the dream narrative in relation to the dream story. The three common points of view in literature were considered: first-person, second-person, and third-person; other potential perspectives were also considered. Participants' narrative perspectives were consistently first person participant, with a few instances of first person participant observer. Both Paul and Thomas actively engaged in their dreams as if the dreams were any other real world interaction within a waking situation or environment. They engaged in conversations with dream characters as well as physical activities, such as repairing mechanical devices, cycling, driving, walking, and experiencing physical contact (e.g., kissing and tasting). In two of the dreams, Paul acted as an observer of other characters, but in at least one dream, he appeared to have still been present in the dream room watching the characters interact. While Paul had two instances in which he was watching

dream characters, Thomas, in contrast, had two dreams in which he was the one being watched:

**Paul:** I'm dreaming one; I'm watching a person, a female trying to leave the room. The room is a projection of the next screen. The lady is approaching what would be a wall with a door in it.

**Paul:** In a room observing but not noticed by these people, they were all angry and annoyed at the government.

**Thomas:** There was something about me being watched through a computer. Someone was monitoring some capability I had.

**Thomas:** There's a girl standing outside watching us. There are other people here and it seems to be a party. No one else is paying attention to us but this other girl. The girl I'm with tells me that the other girl outside likes me. I tell the girl that is outside watching that I'll be there in a minute.

#### ***4.3.3.6 Discussion on Perspectives***

The finding that participants consistently experienced dreams as a first person participant, rather than an observer, is consistent with the use of dreaming as a means of creating a lived experience for effecting behavioural change. This is due to the participants experiencing and accepting the unfolding dream narratives as occurring as a part of their natural world (Kahn & Gover, 2010). This enhanced the dreamer's identification with the dream narrative as a real meaningful event (Stickgold, 2005; Wamsley et al., 2010). Further, the first-person dream experiences that might affect behaviour were recorded in memory as if the event occurred in waking life, with all the potential for experiential learning (Datillo, 2000; Kolb, 1984; Stickgold, 2005; Stickgold

et al., 2001; Walker et al., 2002). This finding confirmed that dreams are experienced as a lived event for the dreamer, making it an ideal virtual reality environment for behavioural training and reinforcement, as the dreamer is in a safe setting that is also realistic for him.

#### ***4.3.3.7 Subtheme: Narrative Setting***

Setting refers to the narrative setting, scene, and dream environment that was coded and analysed. This included, but was not limited to, interior and exterior settings; familiar and novel settings; otherworldly, bizarre, or everyday settings; and nature versus manmade settings or dream objects. The narrative settings were primarily environments familiar to participants' everyday lives and interests. Dreams tended to be in interior settings rather than exterior settings, although a few were set in nature. There were only three dreams with natural environment settings: Paul's dream of a forest and Thomas's two dreams with desert landscapes. As with the lack of awareness regarding the passage of time within a dream, both participants were unaware of changes to the dream setting or fragmented narratives.

Within many of the dream narratives, there were abrupt changes in the content and setting of the dream environment; however, none of these changes affected the realism the participants perceived as a lived experience within the dream. Neither participant seemed bothered by fragmentation of the episodes or the movement from one scene to another. The study showed that participants transitioned easily from one dream scene to another, even as it often produced a completely different setting or emotion. Examples could be found in both Paul's and Thomas's dream journals.

**Paul:** In the forest with a shovel, I use it like a pogo stick and bounce up and down to great heights and land up trees and then go back to the ground again.

**Thomas:** Next thing I know, I'm in a penthouse lofty apartment building restaurant. I hear voices but don't see any people. Start to walk inside and realize I have glasses on and a suit.

The majority of these transitions of settings, character interactions, and episodic topics took place with the dreamer remaining wholly absorbed in the moment with little or no notice of the changes. The participants remained engaged in the dream the entire time. Paul captured this idea well in his post-study interview when he said, 'sometimes you just wander from one scene into another, you turn around and it will just be different. I don't try and control the dreams in the scenes'. Most of the participants' dreams had mundane, everyday content. The participants' dream narratives tended to be in everyday settings.

For both Paul and Thomas, the settings of their dreams did not necessarily reflect the settings that were most common in their waking lives, but the dreamscapes did reflect the waking world in general. Although there were instances where the homes in which some of the dreams took place were familiar to Paul and Thomas (e.g., Paul experienced a former home from his past and Thomas was occasionally in his mother's or a friend's home), in most instances, the settings were unknown or unique, though familiar in the respect that the settings were grounded in places one would see in actual waking life. For example, Paul experienced dreams in settings such as a construction site, a home that was not his own, and a garage that was not his own. Thomas experienced settings in clubs, a rooftop, an apartment, and deserts in his dreams.

There were only a few dreams that would be classified as bizarre or otherworldly. In those, the dreamer was endowed with some ability or was placed in a situation in

which he could experience things beyond the laws of physics, time, or space and he was limited only by his imagination. Thomas had two dreams that took place in an otherworldly setting or a setting that was transformed in a way that was unusual, and both of those occurred when he was aware that he was dreaming (when he became lucid):

**Thomas:** I put my hand out and realized I was dreaming; everything stopped. I was pulled into the air but I ‘willed’ the dream to continue. I was being pulled through the night sky. I saw many continents on this planet. This wasn’t earth. It was a much bigger planet with more water. I was being pulled to a location, then I woke up.

**Thomas:** When I try to walk through the mirror I was pulled away from it and woken up.

For both participants, the dream state remained stable, even in cases in which the dreamer recognized that the narrative settings were unfamiliar. In one dream, Paul did not recognize the setting, and it did not feel like his own home, but his emotions did not intensify; he simply accepted it as the current environmental setting. The participants’ awareness of lucid dreaming also affected the dream setting and the awareness would sometimes shift time, space, and other dream content into bizarre or otherworldly experiences. Both participants displayed a similar response to their transition into becoming lucid during the dream. While the majority of both participants’ narrative settings were in real-world recreations of everyday settings such as apartments, houses, gardens, and so forth, in some cases, when the dreamer became lucid, the setting would turn into the bizarre, otherworldly, or imaginative setting that is typically associated with dreams. Paul and Thomas wrote the following examples in their dream journals:

**Paul:** I think I must be dreaming and look around the lounge and it is so real I am not sure. I put my hand through the wooden support of the chair and yes I am dreaming. I decide to go and close my dream eyes. (I have learnt to close them in the first stages of a dream as it greatly deepens the state.) I am being rushed backwards at a great speed and for a long time. I now have my eyes open and am in the 3D darkness or void and just let this rushing backwards happen until I feel myself slowing down.

**Paul:** I get through and sink into a cold, green slurry of ice water. No panic as I have breathed in water, solid rock and in space many times so I enjoy the sinking feeling and drift down for a long way feeling the cold and soaking in the energy of the ice.

**Thomas:** I turned near a tunnel but I was going too fast to make it and I was about to hit a brick wall when I put my hand out and realized I was dreaming; everything stopped. I was pulled into the air but I 'willed' the dream to continue. I was being pulled through the night sky. I saw many continents on this planet. This wasn't earth. It was a much bigger planet with more water. I was being pulled to a location then I woke up.

Both Thomas and Paul mentioned instances in which dream content has attributes of the impossible, but the dreamer continues to experience the dream as reality occurring in that moment. Paul relayed the following during the post-study interview:

**Paul:** So that, the best, the reality is two spaces to keep at the same time. I love going down inside of rocks down inside the Earth and just looking on the crystals, that's just, that's just... I call them crystal gardens.



These bizarre and otherworldly experiences often intensified and had a significant impact on the dream element of reality.

#### ***4.3.3.8 Discussion on Narrative Setting***

Similar to the findings with regard to time, the results for setting were heavily populated with familiar, everyday real-world settings rather than bizarre or otherworldly settings. This finding affected both the narrative and reality elements of dreaming. The narrative was affected by having the rest of the dream (including the characters, objects, and subsequent emotional and behavioural responses) develop either simultaneously or in-line with the setting by generating real-world style content. This meant that the dreamer had fewer elements to question because they appeared bizarre or out of place.

While the majority of the settings were reported as everyday types of settings, this is not to say there were not elements in the narrative that were bizarre and simply not noticed by the dreamer. Dreamers have been repeatedly found to be unaware, to forget, or to complexly fail to notice things occurring in their dreams, including bizarre, strange, or out-of-place occurrences (Simons & Levin, 1998). Instead, the focus of the dreamer is on anticipatory thinking and acting in response to the immediate situation rather than paying attention to any inconsistencies in setting, time, scene changes, etc. (Kahan et al., 1997; Kahn & Hobson, 2004).

For the purposes of behavioural change, it appears that the narrative may at times follow and emerge from the dream's setting. So, the ability to transform the narrative may be triggered by altering the dream's setting. If one can alter the dream into a desired setting then there is the potential to trigger the intended behaviour-related narratives and experiences in the dream. This ability to transform the setting and dream scenes was

actually found as a real and consistently used ability of the participants. The way in which they were able to transform their lucid dream narratives is discussed in the next subtheme.

#### ***4.3.3.9 Transforming Dream Narratives***

All of the information that related to when the participants perceived or were able to change the dream content, setting, narrative, or other aspects of the dream which transformed either intentionally or unintentionally, was gathered. Many instances were in the dream journals, and related how participants intentionally and unintentionally used elements like doorways and mirrors, or movements like spinning and turning around to change dream content, settings, and narratives. These devices, which for this study I have named 'transition gateways', allowed the participants to force a transition in the dream narrative from one episodic topic or setting to a completely different one. Both participants stated they commonly used these as lucid dreaming devices. Paul was particularly adept at using or attempting to manifest these devices. Paul stated in his post-study transcript:

**Paul:** Inside my dreams, if I want to go somewhere, I ask for a door.

The participants had some success in changing the dream narrative but more difficulty in directing the transformation when attempting to manifest a very specific dream setting. While the participants could turn around or go through a door to get to a new scene, they had limited control over what that dream scene would become, and it took additional effort to manifest content related to the desired dream scene. For instance, Paul wanted to manifest a door that would lead to his trading room. He found that while a door or manifestation of his desired door would appear, the door would lead him to

scenes not directly related to the trading room, although he came to believe that these other scenes were metaphorical representations of the trading room.

When Paul entered a new scene, he then became absorbed in the dream scene and was carried along in the new narrative. In a few cases, he remembered that he had wanted to get to the trading room, and it took further efforts to manifest images of the trading room. Thomas also altered the dream scenes using a transition gateway within the dream, but he did not attempt to manipulate the new dream setting; he simply allowed himself to transition and become absorbed in the new storyline.

For both participants, the attempts to manipulate or alter the dream scenes did not appear to affect the realism with which they experienced the dream nor their ability to become absorbed in the dream content. Paul often used a door within his dreams to get from one place to another. Paul attempted to manifest a door inside the dream state on several nights. In some cases, there appeared to be a direct correlation between Paul's manifestation of the door and the intent and planning Paul had used, as the following excerpt from the post-study transcript suggests.

**Paul:** Many times you can turn around and enter a different scene. I just like exploring places, seeing what I can find. There's always something to do, always something to find or play around with or see where it all goes. And you can take it with you and go explore and it opens what I call opportunities rather than being in a closed environment. You don't place a limit on my beliefs so I don't do it in the dream world.

One night, Paul had carefully planned a lucid dream in which his intent was to focus on manifesting a door to bring him to the trading screens. That night, he had a series of lucid

dreams within the span of approximately an hour in which he focused on manifesting the door that would lead him to the trading room. He related that each dream brought him closer to his goal of using the door to enter a trading room. In the following dream journal excerpts, bold font was added for identification of door references.

**Paul:** I walk into a shop and find a blank wall. I ask and will for a doorway and this is to lead me into a trading room. A door appears on the wall and I struggle to get it open. It opens but is not [trading] room

**Paul:** I step onto the ice and it is hard, beautiful, and very cold and again asks and will for a door several times. Nothing happens. I put my arm out and an iron bar appears in my hand. I scratch and chip the outline of double doors in the ice, it is hard and this takes a while. I put two handles in the middle. I chip at the handle area until it softens a little and then jump up and land hard on the handles. I get through and sink into a cold, green slurry of ice water. No panic as I have breathed in water, solid rock and in space many times so I enjoy the sinking feeling and drift down for a long way feeling the cold and soaking in the energy of the ice. I am now in a concrete room, my trading room and ask for screens. Instead I get tables with drawers like in a museum and so start to open them.

When Paul tried to force the transitional gateway to work for him, it did not. Paul reflected on this lucid dream in his dream journal and post-study interview:

**Paul:** Interesting that I took my goals to the dream and had three goes at the door and room. Each time it got a little deeper or closer to the goal.

**Paul:** This intrigues [me] because I haven't asked for this, twice I've asked for a doorway, two trading rooms with screens and I've had results but nothing too

startling. This time here, my entrance to the doorway and it was going to be made of green glass, and I just look over, looked over the river and the river is green glass. It's frozen ice, its green glass, all the way. I asked for it, it disappears.

Paul had multiple non-lucid dream door images, and doorways also appeared and disappeared in those dreams. The dream doors appear in altered, partial, or metaphorical forms as in the following examples, where in addition to a door, the transition gateway appeared in the form of a folding screen, a hatchway, or other images. The transition gateways did not need to be doors. Both Paul and Thomas also experienced mirrors as gateways and Thomas used spinning to transform the dream environment.

**Paul:** I had a void dream long time back, it was real funny. I just say I want to go into the void and relax and when you go in there your body just... very hard to describe. You exist but there's no sense of self just pure consciousness, pure energy and had my feet stuck on the floor of the dream room, half my body in the mirror and whatever was through the mirror was in the void and didn't exist but there was an energy around it through it so you're transitioning through three different spots at once.

**Thomas:** I try to find a mirror to change the dream. I see the mirror but when I look into it I have this old work uniform on and I appear younger. When I try to walk through the mirror I was pulled away from it and woken up.

**Thomas:** I wake up in the dream and rub my hands together, spin in circles and demand clarity out loud. When I asked for clarity, the dream warped as if it were being moulded into something different.

Another form of transition was accomplished through movement. Narrative plots were frequently advanced or the scenes were changed by Paul through the use of the sensation of movement. Specifically, Paul would walk from one room to another scene, or turn a corner, etc. In these scenes, Paul would often encounter a dream character who fit the new setting of the dream (shop girl in the shop; mechanic in the car repair shop, attendant at the pumping station, and truck driver in the construction site).

#### ***4.3.3.10 Discussion of transforming a dream narrative***

Both participants manifested transition gateways which appeared both intentionally and unintentionally to change the dream narrative from one setting, scene, or scenario to another by simply going through a portal, turning around, closing one's dream eyes, or any number of other possibilities. Transition gateways could be an additional behavioural tool in the event that any of the dreamers needed additional help to transform the dream environment. The gateway could be a simple portal to help transition from one scene or feeling to another. Or the gateway could be a visual image such as a doorway, a cloud of mist, a waterfall, an arbour, a tunnel, or any other visual image that would allow a person to pass from one side of an entry and emerge on the other side. In addition to the dream environment, the transition gateway also has the potential for dreamers changing themselves. For instance, the dreamer might imagine that they have been transformed emotionally, physically, or behaviourally by the process of crossing through a transition gateway giving them the opportunity to experience themselves differently from waking life or a previous dream scenario.

Several respected lucid dream experts use transition gateways (Garfield, 1995; Waggoner, 2009). It is reasoned that the creation of a transition gateway might be able to

help link the image that the dreamer has of themselves in the present with an image of their transformed or future selves. The dreamers can visualize, select, or create a transition gateway that most appeals to them. Paul's work with dreams within the study showed that choosing one consistent transition gateway increases its success by becoming a part of the dreamer's automatic thinking and from the ease of use due to practice. The use of the transition gateway was based on and adapted from research into how professional lucid dreamers use various dream settings, sensations, and processes to quickly transform the dream body, environment, or dream narratives (Barrett, 2001; Gackenbach, 1991; Garfield, 1995; Krippner et al., 2002; LaBerge, 1993; Waggoner, 2009).

Similar techniques have been used in lucid dreaming studies to help the lucid dreamer change physical locations or enter a space to ask a profound question (Garfield, 1995; Waggoner, 2009). The dreamers are free to imagine and adopt any transition gateway they want. As such, the transition gateway could be used as a simple method to help a dreamer transition from an unintended scene to a desired scenario. This would be of tremendous benefit to any dream method that seeks to intentionally alter or manifest a dream.

#### **4.3.4 Theme 4: Sensory and Physiological Stimuli in Dreams**

##### ***4.3.4.1 Criteria***

This section includes the information gathered related to all the recorded experiences in the dream journals and interviews related to the participants' dream experiences with sensory content, which included sight, sound, colour, touch, and taste. Additionally, it includes all physiological experiences and data that were gathered.

#### **4.3.4.2 Description of Results**

Participants reported many sensations in their dreams, both sensory stimuli such as touch, taste, sound, and sight as well as physiological stimuli. There were frequent instances of physical movement that were present in many forms, including operating transportation vehicles (car, helicopter, truck, bike, etc.), walking, and running. Paul's dreams frequently contained sensations of rapid movement and tactile sensations which reflected similar sensations he might find in his waking life. For instance, there were multiple references to transportation where he dreamed himself physically in the vehicle and moving. Like Paul, Thomas had a psychological experience that was detailed and gave a moment-by-moment account of a transportation event; but where Paul was on a bicycle, Thomas was in a car. However, they were very similar in moment-by-moment replay. Some of the episodic dream narratives were very detailed physiological experiences:

**Paul:** There is a detour sign and the man says that I can sneak past and go round the corner onto the detour. I keep going and then go round another corner and there is a building with an overhanging veranda. I duck under this and a truck pulls up, it blocks the path I have just taken and gets closer to me. I am now in a very small space and not too happy about it.

**Thomas:** I was somewhere on a planet and at first as it started I became aware that I was driving a car and I was going really fast and I flew past some cops.

Paul's familiarity with the feeling of movement and the ability of his dreaming mind to create such realism suggests that he has experienced these things consistently in his waking life. When asked, Paul did say that he had a strong interest in cycling and



does drive often, so his body is physiologically conditioned to know these feelings at a very deep level; this is consistent with the realism with which he experienced these movements in his dreams. These physiological sensations enhanced the reality for the dreamers:

**Thomas:** I was going right into the brick wall and then that's when I realized, I was like yeah, yeah I'm dreaming and I know I'm dreaming now, because now I don't really even know where I am. I was just asleep on the bed, so soon as I realized that, I was like pulled out of my car.

Similarly, Paul recalled the following:

**Paul:** ...my hand through a chair and decide that I was dreaming. From that point on I just relaxed on the chair, the dream chair, I just relaxed and I was being rushed backwards which is quite an odd feeling, you can quite often get a sensation of travelling through the blackness or darkness or the void.

Dream states involve an altered world, even if it's an imaged one, that a person experiences by interacting with people and the environment, using sensory stimuli that involve touch, smell, taste, sight, and sound. These physical and sensory experiences evoke thoughts and emotions (Kahn & Hobson, 2005; Symons, 1993). Participants in other studies reported that the primary senses used in dream states were the same as in waking life: sight and touch. These studies mirror participants' reported sensory experiences in this study, including the use of sight to accomplish an anticipatory thinking goal, such as when Paul realized he was in his ex-partners' home and went 'looking' for his kids and ex-wife. Participants were also connected to their physical bodies and able to experience reality in the dream and to push the narrative forward. This

included feeling pain, pleasure, and using touch to explore the environment. In Paul's case, he also used touch to test to see if he was in the dream state by putting his hand through the back of a wooden chair; its insubstantiality allowed him to realize he was dreaming.

Sight helped to move the narrative forward in several ways. The actions of a scene were moved forward by the prominent use of looking and seeing in combination of anticipatory thinking of what the dreamer expected to find. For instance, Paul would often 'look' for something, such as his children or an object, or he would 'look' in a particular direction. The physical interaction with dream objects and the dream environment was also one of the consistent ways the dreamers experienced reality. Many of the participants' journal entries referred to objects with which they would physically interact.

The objects in the participants' dreams were primarily manmade objects, which served as actual devices or tools within the dreams. These items tended to be consistent with the setting, such as a garbage disposal in the kitchen, a digger with a trenching tool at a construction site, a car part at a mechanic's shop, and a catalogue at a shop. There were some that were out of place, such as a pair of kid's shoes on a parcel at the mechanic's shop, but these were rare occurrences and the reality of the dream tended to provide consistency with the way a dreamer used the object as it would be used in waking reality.

Colour and visual beauty were noted as particularly vivid and impactful in the dream state by both participants, although they only occurred in a limited number of dreams for each participant. During the post-study interview, Paul relayed the following:

**Paul:** I can, well most people can, I can spend a few hours in the garden, come in, close my eyes in the afternoon or in the evening and I can spend an hour just looking on images forming, you know plants that don't exist, colours you just can't comprehend, there will just be a spot of light, little brown leaf and a petal and in the evening there will just be endless one after another for air the organic images just move and grow in front of me. Just your mind taking the colour and shapes of the day and bending them and it's nature too. It's nice.

The expression of physical deformity and pain was another recurring theme in the participants' dreams, with either the dreamer or the dream character being exposed to painful stimuli or manifesting an injury or deformity to the dream body which in turn generated either emotional or actual physical pain for the participant. They experienced emotional pain when they perceived the distress of the injury to a dream character; they experienced both physical and emotional distress when the participants themselves experienced the injury (Thomas with a snake bite, Paul with memories of dreams prior to the study where he injured or amputated fingers).

Physical pain and touch caused a faster evolution and progression of the dream narrative, escalating the emotional response and the urgency of the moment. This caused the participants to behave in ways consistent with resolving the crisis. This was also consistent with the behaviour in the other dreams that were stimulated by situational events. It indicates that one of the main objectives of the dreamers was often to attempt to resolve any conflicts that arose in their dreams. Paul was able to experience taste in dream states: 'I started to drink it and it tasted like malt and had a thick skin on it that I was able to eat like a biscuit'. While sight was still a primary sensory stimulus, constant

physiological sensations or the perception of touch were present, including the presence or perception of imminent danger and/or an intense experience of pain in participants' dreams. Thomas was able to experience the physical contact associated with romantic interaction with his dream partners, including touching and kissing.

Both Paul and Thomas experienced emotion and physical pain their dreams. Thomas experienced physical pain in his snake-bite dream, quoted earlier, in which his mother failed to respond to his need for care. According to Paul's dream journal, he observes most of the pain in his dreams as a witness to other people's injuries. Both participants experienced instances in which they or the characters had deformities or injuries.

#### ***4.3.4.3 Discussion of Sensory and Physiological Stimuli in Dreams***

There were only a few, limited situations in which the dreamer simply enjoyed the dream experience without finding an objective or challenge to overcome. It would be interesting to see if this finding is consistent among all cultures or a trait that is found predominantly in Western civilizations who are consistently seeking to overcome obstacles, rather than enjoying the moment. There were several dreams in which the participants enjoyed the dreamscape without the need for resolution, such as Paul's dream of being absorbed in viewing the dream art and Thomas's momentary enjoyment of the desert before the dream scene changed. What this meant for the study is that dream narratives have a tendency toward trying to solve a problem encountered in the dream and therefore are primed as a space for behavioural training and/or observing the habitual behavioural reactions of individuals.

Dreaming is a physiologically, chemically, and neurologically induced state of altered reality that includes experiences of sensory perceptions. In a dream, neurons in the physical body are engaged and they represent the dream experience as reality to the body (Hobson & McCarley, 1977). Participants reported the full range of physical sensations during dreams and observed that sensations created an experience closer to the waking state, particularly during lucid dreams. Sensory experiences in the dream journals and interviews related to the participants' dream experiences included sensory content such as sight, sound, colour, touch, and taste. The participants experienced their dream environment through their senses in a way similar to how an individual experiences waking reality. This finding is consistent with the findings of Hoss (2005). In terms of physiological sensations, Hoss (2005) found that nearly 100% of dream reports included visual content, 40% to 60% reported auditory content, 15% to 30% movement and tactile sensations, and less than 1% had smell and/or taste (Hobson, 1998). An essential component to creating the feeling of reality and therefore of a lived experience in dreams states is predicated upon a person's ability to feel and use his or her physical body and attendant sensations. Of the three dream elements, reality was heavily influenced by physical and sensorial stimuli in dreams.

Analysing the narratives, I determined that three types of reality emerged for the participants. I refer to the first as *Physiologically Reality*. Dreaming occurs due to changes in the neurological status of the brain while asleep. This is naturally occurring either because of our normal biological processes, such as dreaming, or because of a disorder or imbalance in the process, such as a delusion or hallucination. As a dream-state, lucid dreaming is part of this type of process.

I refer to the second type of reality as *Mentally-Induced Reality*. This occurred with the participants when they used their imagination in the pre-study interview to induce a desired emotion for what it *might* feel like to accomplish their desired behaviour, both physically and emotionally. Guided imagery would be another setting for mentally-induced reality, since the person consciously participates in imaginative exercises to induce a state of perceived reality (Rossman, 2000). This would include daydreaming, guided imagery, hypnosis, mental rehearsal, or other uses of imagery. This allows for more control over the images created while allowing for similar (although decreased) physiological, emotional, and neurological rehearsal and responses. In guided imagery, people surrender to their imaginations (Polster & Polster, 1973; Rossman, 2000). By not fully believing something is real, it is as if their self-awareness is awake and intact, but using suspension of disbelief. Participants give themselves permission to imagine themselves in a situation that activates the kind of imagery and role playing needed to induce a state of belief. The mind cannot experientially tell the difference. To mimic dreams using guided imagery would allow for more direct control than would otherwise be possible in a sleeping dream state.

I refer to the third form of reality as *Experiential Reality*. Lucid dreaming successfully created an experientially-induced reality for the participants in this study, where an artificial environment was used to create a reality based on a physical sensorial-based experiences in combination with high-emotion states. The participant experienced both everyday and high-adrenaline situations that caused an activation of different emotional states, thereby making the experience real and recorded within the participant's memory as a lived experience (Stickgold et al., 2001; Walker et al., 2002; Wamsley &

Stickgold, 2011). This is similar to lived experiences in other fields, which include revivals, seminars, team-building retreats, group dares, acting, and performance (Benedetti, 1999; Datillo, 2000; Luckner & Nadler, 1997; Polster & Polster, 1973).

In addition to the recognition of three potentially different kinds of reality, there was also how that reality was experienced. Within the dreams themselves, the information that emerged clearly indicated the major role that physiology played in making an experience real for the dreamer. For each participant, the movement and physical connection to his body in the dream enhanced the emotion of the dream. The combination of physiology and emotion helped make the dream real, even when the dreamer was lucid and fully aware he was dreaming. This was an important part of the study because it showed that a dreamer can be conscious and participating in the dream state and it does not appear to have an effect on the realistic quality of the dream. This means, if a way is found to influence the dream state, it can be as powerful as a naturally occurring dream, therefore a systematic behavioural change method inside the dream state is potentially viable if one can be discovered and/or developed.

### **4.3.5 Theme 5: Lucid Dream Manifestation**

#### ***4.3.5.1 Criteria***

This section includes any information that related to the ability to manifest lucid dreams that was collected and analysed during the study. This included any difficulties, successes, failures, or contributing factors that could be identified. The data collection revealed information related to when and if any lucid dreams were manifested; to the differences in content of lucid dreams versus non-lucid dreams; to the tools the dreamers used to identify and prompt a lucid dream; and to how the participant's ability to manifest

lucid dreams during the study compared to their normal capability to manifest lucid dreams during their regular lives.

#### ***4.3.5.2 Description of Results***

This theme refers to participants' ability to manifest lucid dreams at will during the study. Two aspects emerged from the narrative analysis of the data related to lucid dreaming: lucid dream manifestation and dreams signs. Both participants attempted to prompt a lucid dream on the first night of the study, but neither had a lucid dream that they remembered. Paul reported six nights of dreams during the study week, which consisted of about 29 different dreams or storylines. On one occasion, he was able to achieve lucidity that included a series of dream episodes over a 70-minute period. Paul typically has the consistent ability to achieve four to five lucid dreams in a week; however, during the study time frame, Paul was only able to manifest one lucid dream. This is an unusually low number of lucid dreams for Paul. Similarly, Thomas was not able to produce a lucid dream on the first night of the study; however, he was able to produce two lucid dreams during the subsequent night of the study. Thomas noted that his ability to recall dreams fluctuated during the study. It was inconsistent, and there were nights when no dreams were recalled which he found unusual because he typically recalled at least one dream per night.

**Thomas:** It was fluctuating because I would have short ones and long ones [lucid dreams], and usually it's just long ones, so it's definitely fluctuating and then I also skipped some days. I usually have one every day, I'll be able to remember about one whole dream with bits and pieces, like a lot of bits and pieces, from other dreams.



Thomas felt his lucid dreaming ability was affected by both the pressure of the study and stress associated with the relationship with his mother in his waking life. The following is an excerpt from the post-study interview in which he discussed his perception that stress affected his ability and then his relief in finally having a lucid dream:

**Thomas:** I don't know. I didn't really, I didn't feel any kind of way, I was just glad that I had one [lucid dream], really.

The participants found that some of the dream content was potentially related to actually *being in the dream study*. This occurred once with Thomas, and possibly two separate times in Paul's dreams. Thomas experienced a lucid dream prior to start of the scheduled dream journaling sessions that manifested references to the dream study. Thomas also manifested conscious recall of participation in the research study within a lucid dream. This occurred the evening after the pre-study interview. The targeted night for the lucid dream experience was two days later. Below is Thomas's journal entry containing a reference to being in the dream study that was incorporated into the lucid dream content (emphasis added):

**Thomas:** I'm standing outside on a private balcony and start to walk inside and realize I have glasses on and a suit. **I remember the upcoming dream study.**

After the targeted study night, Thomas also had a second dream later in the course of the study that contained direct references to the research study. Unlike the first dream, this dream was non-lucid.

**Thomas:** There was something about me being watched through a computer. Someone was monitoring some capability I had but not only me, there are four

people in the group. Also, the lady that I'm doing the study for tells me there is much more to the study... She introduces a new equation for me to incorporate into my dreams.

Thomas recorded his dream without making any connection between his dream and its direct reference to the study until the post-study interview. Thomas simply wrote the dream down after waking and, in his drowsy state, had forgotten about it. Thomas was taken aback with amusement and surprise when he realized he had dreamed about being in the study. Thomas further believed that the dream was giving him signs and signals to become lucid, but these signals were missed. Below is the post-study interview transcript from Thomas detailing his insights:

**Thomas:** Ok. there was something about me being watched through my computer, someone was monitoring some capability I had, but not only me but about four other people, also the lady that I'm doing this study for tells me that there's more. Oh you, okay, so all right.

Paul had several testing dreams that could potentially be related to the laboratory effect, but because testing dreams are one of the common recurring dreams among the general population it is difficult to determine a direct correlation. Further, Paul did not have any observable dream content that was directly attributed to participating in the study. Paul wrote about his testing dreams:

**Paul:** I am in a class-room and studying by myself, some sort of test that did not have questions but required answers.

**Paul:** I am in a room with a man and trying to do a test. He keeps saying I am wrong but giving no clues. He gets annoyed and says 'just look at the patterns'.

Both Paul and Thomas recognized multiple dream signs. In fact, with regard to the dreams he recorded during the course of the study, Paul stated that, ‘The dreams are just full of signs that to allow me to get lucid’. Receiving, recognizing, and missing dream signs are common occurrences in the lucid dreaming process for both beginners and even advanced lucid dreamers. Both the ability of participants to notice dream signs and the timing when the participants experienced an unintentional awakening from a dream state varied during the study.

**Paul:** Your subconscious, dream maker, whatever you want to call it, wants you to get lucid dreams, so it starts giving you signs and I’m thinking, ‘I’m quite thick at times, because I miss them all’.

**Paul:** There’s an emotional content there, because my subconscious has picked one of my best friends to be crushed, and I should go ‘hell what’s going on,’ but I’m too silly to pick up on the clue.

**Thomas:** Yeah, I guess that was supposed to be a dream trying to tell me to wake up, I’m dreaming.

Here are a few examples of the dream signs from the participants:

**Paul:** Think the lights and the disposal are on different circuits—aha, I must be dreaming.

**Paul:** Yes, so I was looking in a catalogue. I don’t know what was I looking for, but the young shop assistant, the old lady who was helping me couldn’t find the pages and it’s crazy, there’s always a classic that numbers being missing is a good dream sign. You know, you can’t find a number or you write a number down that changes, you’re writing 1, 2, 3, 4, then as you’re writing the 2, the 2 changes to a

5, the numbers don't hold the integrity.

**Thomas:** I was going right into the brick wall and then that's when I realized, I was like yeah, yeah I'm dreaming and I know I'm dreaming now, because now I don't really even know where I am.

**Thomas:** Lucid dream I'm driving a car somewhere under a bridge when I realize I'm dreaming... I was just on my bed. What woke me up was that I was speeding past cop cars.

Both Paul and Thomas showed that high emotion can pull a dreamer out of the dream state into an awakening. Their results also indicated that becoming lucid even when the content is not intense can cause an awakening. In one case, Paul had a false awakening, which is when he believes he has woken up but he is actually waking inside another one of his dreams.

**Paul:** Think the lights and the disposal are on different circuits—aha, I must be dreaming. I wake up and start to relax again.

**Paul (false awakening):** At the top was an old bed and I rested for a while. When I woke up I made my way down.

#### ***4.3.5.3 Discussion of Lucid Dreaming Manifestation***

The participants' ability to experience and recall lucid dreams during the study period was important for two reasons: (a) the collection of richly textured data for coding and later analysis, and (b) the exploration of the potential for lucid dreaming as a dream technique to produce behavioural change. Participants were able to manifest lucid dreaming with varying degrees of success; however, both reported some difficulties. For instance, Thomas reported only two lucid dreams after a 10-day period. This was not

unexpected, as lucid dreams do not always occur on demand and often requires several nights of practice and intention to manifest (LaBerge, 1989, 1993). However, both participants reported a *reduced* number of lucid dreams as compared to their normal ability to manifest lucid dreams when not participating in the study. Thomas reported that he felt his lucid dreaming ability was affected by both the pressure of being in the study and the stress of his relationship with his mother in his waking life.

The participants' difficulty in manifesting lucid dreams was consistent with findings from other studies on both lucid dreaming and the cognitive limitations of the dream-state itself (Benedetti, 1999; Hobson, 2002; Woodward, 2008). Several factors can affect lucid dreaming, including the emotional state of the dreamer both psychologically and within the dream-state. For instance, stress or the presence of intense emotions in the dream can inhibit lucid dreaming (Kahan, 2011; Karim 2010). A person who is sensitive to stress or to being overwhelmed may feel emotional burnout at a lower threshold than someone who is used to activities with high adrenaline or constant high-emotion states. These emotional stress factors may have had an effect on the ability to produce a lucid dream and to recall non-lucid dreams on the part of the participants.

The participants also reported periodic moments of nervousness and stress; both had highly emotional dream experiences that might have produced emotional burnout (Kahan, 2011). There is a delicate balance between how intense an emotion can be felt in order for it to enter a dream state and the intensity at which the emotional system needs to shut down or the dreamer self-awakens in order to recover (Gackenbach & Schillig, 1983; Levin & Nielsen, 2007). Emotional burnout is likely to be triggered at different intensity levels for different individuals (Benedetti, 1999; Gackenbach & Schillig, 1983;

Levin & Nielsen, 2007; Woodward, 2008).

Another factor that may have affected the participants' ability to manifest a lucid dream was the participation in the study itself. Both participants reported dreams that included narratives of testing and actually *being in the current dream study*. This is a common occurrence in dreams studies and is called the 'laboratory effect'. While laboratory awakenings for recording dreams are considered the most reliable way to record dreams, it is common for close to 50% of those dreams to include laboratory references (Strauch & Meier, 2004). Hobson (2002) commented on the laboratory effect by stating, 'the most interesting dreams always occur outside the laboratory' (p.14). The participation in the study may have also increased anxiety in the form of performance pressure, which may have also affected the participants' ability to produce their standard number of lucid dreams during the week.

According to Gackenbach (1991), less than 13% of lucid dreams are remembered and then recorded in dream journals, so it is also possible that the participants had lucid dreams that were not recalled. This was the first time that the research subjects participated in a lucid dream study, which may have also caused some difficulty in producing a lucid dream and/or remembering lucid dreams that did occur. Despite these difficulties, the participants recorded sufficient lucid dream content for analysis and discussion; those data were coded and included in the relevant themes in this chapter. The current investigation was able to show that lucid dreaming is a powerful experience when the participants did enter the lucid dreaming state, with higher levels of control and an enhanced physiological reality.

When establishing a successful lucid dream, both participants used their preferred

methods of becoming lucid, with Paul noting his intentional use of one favoured lucid dream process, 'Back to bed and going into process for WILD (Wake Initiated Lucid Dreams) got to calmness and went to sleep'. There are several successful and varied lucid dream training methods available to the general public, like MILD (Mnemonic Induction of Lucid Dreams) (LaBerge, 1985), reality checks (Tholey & Utecht, 1987), or re-dreaming (Garfield, 1988). However, lucid dreaming is best achieved when the dreamer is able to recognize that they are in a dream. The most common way to recognize that one is in a dream is through the awareness of how the narrative elements within the dream are bizarre and/or not realistic; these are called 'dream signs' (LaBerge, 1989). Both Paul and Thomas recognized multiple dream signs; in fact, Paul stated in his dream journal: 'The dreams are just full of signs to allow me to get lucid'. Thomas also recognized multiple dream signs that signalled lucidity. Paul reflected on how practice increases his ability and the intensity of his experience in one of our conversations about being lucid in dreams:

**Paul:** Nothing special about this for me at all. The environment is special, it's a dream world and I'm fully lucid, I can do things in it and every time I'm lucid it becomes more and more incredible to me, it's more amazing, amazing I don't know the word, I don't want to put a word on it yet. But at the same time, it happens so often, I'm so comfortable, so confident, so comfortable with it. It's really funny because I don't talk to people about it, cause how could you, where would you have the conversation?

This ability for the participants' to recognize dream signs and use them to successfully enter the lucid dream state indicates there is a viable way to access control

over the dream narratives which can be improved through training and practice. This corresponds with the current use of ‘onironauts’, who are professional expert lucid dreamers used by researchers in laboratories around the world for experiments and research studies that need to take place inside the dream state (Kahan, 2011; LaBerge, 1989, 1993). The results show that while lucid dreaming may be difficult to achieve with existing induction techniques, the lucid dream does produce a state where the dreamer can control the dream content and has the potential to direct behavioural content. This indicates that lucid dreaming is an option for intentionally influencing dream content to affect behavioural responses inside the dream state.

#### **4.3.6 Theme 6: Behavioural Effects of Dreams**

##### ***4.3.6.1 Criteria***

This section includes the data related to elements that triggered a behavioural reaction in the participants’ dreams. This included being confronted or challenged in a dream and having to work through a situation, emotion, or behavioural response. Additionally, this section discusses all information collected that refers to participants’ ability to create meaning within the dream and upon waking by reflecting, journaling, or discussing a dream.

##### ***4.3.6.2 Description of Results***

The participants reported both having positive enjoyable experiences and also being confronted or challenged inside the dream narratives. The dream challenges caused the participants to have to work through a situation, emotion, or behavioural response. In Paul’s case, his intended behaviour target was his approach to trading; he had behaviour-



related content appeared in various metaphorical forms. Paul was able to recognize his trading screens in a metaphorical form of framed artwork, which he intuitively perceived as an altered form of the big computer screen images he was attempting to manifest. Paul believed the images were connected because the artwork (a framed image) appeared when he was attempting to manifest the trading screens (a framed image) inside the dream. The artwork appeared after the manifestation of the door, which was his chosen transition gateway. The door was supposed to lead to the trading screens but instead led to the artwork. This finding indicating that dreamers process information and behave similarly to the waking state is consistent with earlier dream studies in which dreamers described the dream as an authentic lived experience and an opportunity for behavioural change intervention in the waking state (Kahan, 1994; Kilroe, 2000).

Paul connected dream content with his behavioural change goals in the post-study discussion. These dreams reflected Paul's desire to change his emotional state while making trading decisions, which shows some support of the idea of using dreams to process and integrate cognitive, emotional, and sensory information, and then carrying this over from dreams into the waking state. His dream work frequently fused positive feelings associated with the framed artwork to the framed imaged of his computer screen. The pre-study behaviour goal of reducing anxiety, or reducing his habit of 'second guessing' himself with regard to certain trades was addressed in dream content in a manner that connected dream artwork with the computer screen. In some sense, the dream work was using a classic behaviour technique of pairing a positive emotional object (artwork) with the anxiety-producing object (trading screen). The following excerpts illustrate the finding:

**Paul:** Yeah, you look at it and there's a sense of pleasure about it. Looking at that artwork, again it's like looking at a computer screen, it's a framed scene and looking at it, I get content, peaceful, and pleasure out of it, you know and that's, that's similar with those of the feelings that I want to get to override the negative stuff on the charts and just move on and be objective about it. That's almost the rubber [eraser] that washes away the other ones and then neutralizes it.

**Paul:** If the overall thing is me wanting to look at charts, screens which are essentially images, but they are images that are framed. They are framed images; pictures I looked at in later dreams were framed images. The screen was a framed image, you know the screen exists inside something but the dreams contained images and it caught my attention and intrigued me. Well, they contain things that make me feel comfortable. You know when I'm trying to look at a chart and get the feelings I'm wanting—one of objectiveness, peacefulness, calmness...

Several instances of artwork also emerged in Paul's dream journal entries.

**Paul:** I am in a big city, European by the look of it. There are big stone buildings and the streets are paved, with a central pond as well. I walk into a shop and find a blank wall. I ask and will for a doorway and this is to lead me into a trading room. A door appears on the wall and I struggle to get it open. It opens but is not a room but like a folding window shutter and in the space behind there are works of art. I look at these and each time I move my eyes a little, a new work appears. There are as many as I wish to see and they are incredible watercolour works (I would love to paint these as they were truly unique and a little abstract).

**Paul:** I asked and willed a door in the wall, opened it and walked into a room.

Again, no screens after I asked for them but more incredible art. The works were unlimited and just kept appearing each time I had my fill of looking at one. Again, abstract watercolours that gave a sense and feeling of pleasure in looking at them. Also wonder at the artist's ability to create them.

The artwork elicited strong positive emotions within Paul. Paul later used the dream emotions related to the active memory of his experience with the artwork to engage in behavioural change. He took the positive feelings generated from the artwork and actively used them as an *emotional experiential reference* to influence his waking behaviours and emotions, which was discussed in detail previously.

Thomas had some behaviour-related data in this dreams. He had discussed two behaviour goals in the pre-study interview. One was the desire to feel more confident in certain situations and the second discussion was more specifically related to how he would like to interact with women. This appeared as a consistent and repeated dream topic in his dream content. He had seven dreams with women, which included five of the dreams with a number of girls and two of the dreams with his mother. Within these dreams, Thomas had some successful romantic interactions and some emotionally-distant interactions with these girls. Thomas did not mention in the post-study interview that these dreams had any effect on his waking-life behaviour, but did observe that in his dreams, both during the study and during his regular dream life, he had a number of dreams of girls. These girls provided behaviour triggers inside the dream state, which as discussed previously influenced the emotion, behaviours and direction of the narrative in the dreams. In addition to the actual behavioural responses inside the dream, there was

also the effect on the dream content through the meaning the participant gave to the dream, as described in the next section.

#### ***4.3.6.3 Meaning-Making of Dream Content***

Both participants attributed meaning to their dream during the recording of their dream journals and upon re-telling or analysing the dreams after waking. Paul especially had a natural ability to quickly understand what his dreams meant to him. He often included an intuitive analysis in his dream journal. In the study, Paul came up with several insights that helped him strengthen his success in his behaviour goals by giving him an experience, emotion, and mind-set that was in line with his beliefs about the behaviours he wished to manifest. This ability allowed him to connect meaning to dream content that was personally relevant for him. Paul was able to recognize feelings that were associated with waking feelings or feelings targeted for the study. There was a recognizable quality to some of the emotions that he was able to link to the waking emotions or situations, including those associated with his behaviour triggers or goals. For instance, in one dream that contained images of his daughter on his shoulders, the dream evoked feelings of trust, but these feelings were not a generalized feeling or label; rather, the dream event evoked the same emotional qualities that he recognized as the emotions he wished to generate when working on stock charts.

This finding is consistent with dream interpretation in Western cultures, wherein dream interpretation frequently pairs a dream symbol with a personally significant meaning or feeling. Once awake, the dreamer focuses on the emotional and cognitive similarities between the waking life conflicts, which are analysed using the dream symbol to decipher the meaning of dreams (Garfield, 1988; Hill, 2004). These dream insights are

similar to insights in a therapeutic situation where the insight, understanding, or self-knowledge about a situation, event, emotion, or another person comes from thoughtful reflection (Garfield, 1988; Hill, 2004).

Paul intuitively associated the feelings and meaning from his dreams with his goals or personal self-knowledge. This ability came easily and quickly for Paul. He was able to summarize immediate impressions about dreams without the need for lengthy analysis. He then used these insights and applied them to his life and trading. This fits in well with Hill's (2004) method of dream interpretation, which included a step that has the dreamer take positive action regarding insights that emerge from a dream.

Paul's analysis of his dreams was interesting for many reasons. The manifestations of waking-life benefits from the dreams were reflective of Paul's dream analysis rather than depending on experiential change based on a lived experience, which was one of the concepts explored in this study. However, the analysis did produce these benefits in combination with the dream experiences. For instance, Paul's dream insights, paired with the relevant in-dream emotional experiences, created an experiential reference that Paul felt he could draw on in his trading.

Other examples of the meanings in Paul's written evaluations of dreams can be found below:

#### Paul's Journal Entry Summaries

- Don't force the trading.
- I have the skills; I just need to relax and trust my intuition.
- The opportunities will appear and when they do, I should take them.

- Trading screens and charts are works of art for me—I say they tell me a story and they talk to me.
- Trust the feelings, let them become solid and feel them and play with the feelings.

Paul had developed the habit of analysing or recording his intuitive feelings regarding the personal meaning he placed on the dream. Thomas's dream journal entries were a straight recording of the dream events, so any meaning he may have attributed to the dream could not be analysed, nor could it be determined if analysis was a practice he engaged in. However, there was one conversation in the post-study interview in which he indicated a possible influence or meaning of the dreams from his subconscious:

**Thomas:** See, I was thinking that my subconscious[SIC] was supposed to tell me something I don't know, but I guess it, this is just relating to how I feel about my mother sometimes, where she is just like encompassed or very involved in, in things that don't matter, so I guess that's how I felt about that dream. I don't think she would do that but, you know, that's pretty extreme, but it's kind of an example how that is. Say 20 seconds, that's extreme.

**Thomas:** There's something about what you can do with your subconscious and change just extraordinarily, you can just change your life and it's kind of like a quick fix to me.

Paul also mentioned and attributed some of the dream meaning or content to his subconscious:

**Paul:** Where do you start? Because I printed them out there's quite a few pages and stuff ... I don't know, the first one, dream number three; daughter on my

shoulder, she's scared but trusting ... what I see sometimes is that your subconscious will give you something you are comfortable with and I'm comfortable with my daughter around and I put her on my shoulder and she's scared and trusting. Well, that's also the attitude I need to start developing. I might be slightly scared and apprehensive of what I'm doing but I also need to trust myself to do it. I get weird interpretations because you can twist anything to fit.

**Paul:** Oh, oh this is a funny one, I reckon you meet a lucid dream and your subconscious—there's no better name for it at the moment—your subconscious, dream maker, whatever you want to call it, wants you to have lucid dreams, so it starts giving you signs and I'm thinking, 'I'm quite thick at times, because I miss them all'.

**Paul:** There's an emotional content there, because my subconscious has picked one of my best friends to be crushed, and I should go 'hell, what's going on', but I'm too silly to pick up on the clue.

Finally, there was some elements of the effect profound dream experiences may involve changing a behaviour, such as smoking, or a habitual response, such becoming angry during confrontation (Dement, 1999; Kuiken & Sikora, 1993; Kuiken, Lee, Eng, & Singh, 2006). The experiences can also be spiritual, encompassing encounters with a higher power or a sense of connection with the universe, giving the dreamer an encounter that alters his/her state of mind (Kuiken & Sikora, 1993; Kuiken, Lee, Eng, & Singh, 2006). Both Peter and Terrin had experienced profound dreams prior to the study. As part of their pre-interview, both respondents noted that their previously experienced

profound dreams had affected them, and the memory of the dreams continues to affect their emotion, beliefs and to some degree their decisions in their current lives. Examples of this can be found in the following excerpts.

**Peter:** I had a void dream long time back, it was real funny. I just say I want to go into the void and relax and when you go in there your body just... very hard to describe. You exist but there's no sense of self just pure consciousness, pure energy and had my feet stuck on the floor of the dream room, half my body in the mirror and whatever was through the mirror was in the void and didn't exist but there was something around it through it so you're transitioning through three different spots at once. That's really funny.

**Terrin:** I've had a couple actually, one of my favourite ones, I've been trying to get back to wherever I was. I was walking down the street it was just a straight street pass like just for miles and it was black cement concrete, it had dotted, yellow lines in the middle, but on either side there was nothing but trees, really, really, really green, like really green, just stand out green trees. Vibrant, very vibrant, vivid, and I remember, I'll never forget I had just popped into the dream, it felt like I just popped in there and I was, I looked around and I was wondering what, what was I going to do, there is not even any projection here, nothing that I can do, and nothing, no animals, anything and I was standing there wondering what I was doing and I was just lifted in the air. It felt like a breeze picked me up and I was just floating through the air and these, this feeling of just, I don't even know if



there's a word to describe it. I guess it's close to what, I don't know if this is what Buddhist people would say: Nirvana. But it was really blissful, I was just floating through the air, I put my hands through clouds but I was really, really happy. It felt really good just for nothing though. There was no one there, just me floating through the air and that's why I always blink in dreams. I don't even have eyes, why am I blinking and I blinked and woke up. I tried my hardest not to.

#### ***4.3.6.4 Discussion of Behavioural Effects***

Behaviour modification involves a number of steps, whether awake or dreaming. Study findings suggest that lucid dreams, whether manipulated through suggestion or interpreted afterward, have the potential to interrupt and replace undesired behaviour patterns. The finding that Paul's experiences used pre-dream self-suggestion is promising in that he believed that the suggestion entered the dream content, and that it promoted the desired waking behaviour. Azrin and Nunn (1977) noted that: 'an old habit can be broken by replacing it with a new, more desirable habit' (p. 20). Within the context of a dream, it may be possible to activate an engaging emotional state to recondition belief or behaviour through a lived experience without triggering any trauma. Moreover, it may be possible to create behaviour changes by activating positive emotions in dreams. These findings are consistent with therapeutic use of lived experiences to change beliefs and/or behaviour, so-called experiential therapy (Crocker, 1999; Datillo, 2000; Kolb, 1984; Luckner & Nadler, 1997; Polster & Polster, 1973). Methods from experiential therapy are used in various related techniques such as exposure therapy, and actual experiential therapy can be used in recreational techniques (Crocker, 1999; Datillo, 2000; Luckner & Nadler,

1997). The relevance and specific details of experiential therapy are described in the section of the literature review entitled 'Experiential Behavioural Change'.

Even though Paul did not have a wholly-generated lived experience related to his target goal of relaxed trading, he was able to create positive experiential emotional references which carried over into his waking life and trading during the week. Also, Paul provided intuitive insight on his trading screens manifesting as framed artwork within the dreams. Despite the lack of directly identifiable behavioural narratives related to his goals within the dream world, Paul felt there were elements that gave him the ability and a new emotional experience to help with his new behaviours. He claims that these made a difference for him during waking life throughout the week. The majority of these were derived from personal insights Paul that was able to intuitively recognize from his dreams. Thus, he successfully created both an emotional experiential reference in his dreams and a waking life reference of successfully using these feelings in his work.

In summary, the evaluation of the findings outlined in this Chapter of the study supported the following : the continuity hypothesis from previous studies which found a strong corroboration between waking life content and the focus of an individual being incorporated into dreams (Domhoff, 1996, 2003); dreams experienced as an emotional and sensory reality (Kahan, 2011); the presence of profound and impactful dreams that trigger emotion and behavioural reactions inside the dream state (Kuiken et al., 2006); and some evidence of the intentional alteration of various aspects of the dream experience by the dreamer in lucid dreaming (LaBerge, 1989). There was also some evidence of a habitual response to behaviour in the dreams (Bandura, 1977; Skinner, 1953).

While there was no clear change in any automatic or habitual behaviour reaction seen in the participants, incorporation of the dream narrative stimulus to affect behavioural responses was observed, indicating support for theories that suggest dreams are a ‘pre-play’ of future events used as a virtual reality training ground to maintain an individual’s receptivity and adaptability in waking life to new, unknown, and potentially survival-related situations (Hobson, 2002; Revonsuo, 2000). This aligns with studies, which suggest that dreaming affects declarative, episodic, and procedural memories as well as long-term memories (Hobson et al., 1998). This emphasises the biological function of dreams in consolidating behaviours into memory, reinforcing the idea that dreams are a viable way to alter those behaviours. The findings in this study indicate that the participant’s behaviours can be influenced by dream content and dream characters within the dream state as well as upon waking, supporting the theory that dreams could be used for behavioural change if a systematic method can be developed.

Table 3. *Post Study Interview Data*

<b>Area of Inquiry</b>	<b>Paul</b>	<b>Thomas</b>
<b>Potential changes or effects noticed during dream study</b>	More productivity and elevated mood	He reported no significant behavioural changes during waking but did experience a higher level of clarity and insight.
<b>Duration of changes</b>	The week of the study	Any changes or insights the participant had, he attributed to conversations with me and not due to the actual dream experiences.
<b>Effect of dreams on daytime behaviour</b>	More neutral to positive feelings when trading	Participant did not notice an effect on waking behaviour.
<b>Lucid dreams manifested on targeted study night</b>	None	None
<b>Lucid dreams manifested on any night of study</b>	One night, lucid state lasted 1 hour with multiple scenes	2
<b>Differences noticed in quality, content or intensity of dreams during journaling period</b>	Dreams more vivid	Dreams more vivid
<b>Suggestions for improvement</b>	None	Participant suggested that the study should last longer to provide more opportunity to manifest lucid dreams.

Table 4. *Dream Journal Content Data*

<b>Description</b>	<b>Paul</b>	<b>Thomas</b>
<b>Number of Dreams in Journals</b>	29	8
<b>Number of Days Recording Dreams</b>	6	14
<b>Solitary Activity Dreams (No Dream Characters)</b>	8	1
<b>Interactions with Dream Characters</b>	21	7
<b>Waking Life Content and Relationships</b>	14	5
<b>Transportation (Cars, Trucks, Bikes, etc.)</b>	7	2
<b>Otherworldly Physical Sensations</b>	3	2

#### ***4.3.6.5 Benefits of Study for the Participant: Paul***

Paul stated that the dreams he had during the study were meaningful for him. Paul expressed enjoyment in participating in the study and was able to accomplish some of his targeted goals. He also gained a few additional benefits, including the following:

- Clarity of goals and behaviour triggers,
- Success in creating emotions relevant to work, and

- Personal insights from dream experiences.

Ultimately, Paul was able to achieve a certain level of neutrality and positive emotion in his work with trading charts during the week of the study. He was also able to achieve some of his lucid dreaming objectives. Paul found it beneficial to participate in the study and is interested in participating in future studies in the field of lucid dreaming.

#### ***4.3.6.6 Benefits of Study for the Participant: Thomas***

The post-study interview with Thomas took place 11 days after the pre-study interview and after his dream journal recording period. The session went smoothly and had no technical, researcher, or participant difficulties. The participant was able to produce two lucid dreams during the entire study and multiple non-lucid dreams. However, a complete narrative with the targeted behaviour to produce a lived experience inside the lucid dream was not observed. Even though Thomas's goals for behavioural change were not manifested in any of the dreams, Thomas believed he derived the following benefits from participation in this study:

- Clarity of behavioural objectives and triggers and
- New lucid dreaming goals.

Thomas also related an interest in continuing to target the lucid dreaming goals of the study to see if more time and no pressure would allow him to create the lucid dreams at will. Thomas' participation in the study was of great value because of his genuine honesty in immediately communicating any thoughts and feelings, as well as his willingness to fully explore personal connections, topics, feelings, and relationships. Thomas provided an abundance of information that other dreamers can relate to and understand. His dreams also reflected the same genuine emotion and ability to directly

relate to personal themes, such as his relationships.

Thomas's dreams had a direct connection to his waking life. His ability to transfer waking emotion and relationship content into the dreamscape made Thomas a valuable addition to the team. While the stress associated with creating a lucid dream may have had an impact on Thomas, it was likely only one reason why he was unable to manifest more lucid dreams, which is discussed fully in the 'Findings' sections.

Thomas plans to continue his work with lucid dreaming and to enter into the advanced lucid dreaming communities to build friendships and support. He also plans to participate in additional lucid dreaming studies that may become available in other academic and scientific research. Thomas remained authentic with regard to his experience and feelings throughout the study, which made him an invaluable part of this research study. The next chapter provides a summary of the findings, recommendations for future studies, and the conclusions.

## **Chapter 5: Summary, Recommendations, and Conclusions**

### **5.1 Introduction**

The current research study was based on the idea that individuals need not be bound to behaviours that do not serve their lives. It was once believed that people were fated to their personality and behaviours, and that core personality and behavioural traits were innate and immutable (Bandura, 1977; Thorndike, 1911). It was also thought that people's temperaments would determine their reactions to stimuli (O'Donohue & Ferguson, 2006). However, as the fields of psychology and human development progressed, it became clear that a person's behavioural reactions can be changed (Martin & Pear, 2007). That said, consistent success and ease of use with respect to behavioural change methods remains elusive and has room for improvement. One possible avenue for behavioural change that has remained largely unexplored is whether dreams can be used to prompt changes in waking behaviour. The literature reviewed confirmed that it was not only possible to use dreams as a form of experiential learning (Barrett, 2001; Hill, 2004; LaBerge, 1993), but that they have actually been used that way in various ways by many cultures for thousands of years (Kilbourne, 1987; Tedlock, 1992; White, 1990). This brought up the idea that if profound dreams could intentionally be manifested, rather than occurring only infrequently as a matter of chance, it may be possible to use dreams to alter beliefs or behaviours in the waking world.

To this end, I studied the literature on dreams in order to locate ways through which a dream could be crafted to carry sufficient realism to create a profound experience that would change the waking behaviours of the dreamer, or, perhaps, even a dream method that could be suitably controlled to target a specific behaviour. However, in the



vast amount of literature reviewed, there seemed to be no systematic technique readily available for the construction of life-altering dreams. Another challenge was that even in the literature concerning scientific studies on dreams, these kinds of dream experiences are hard to define, because there is no common lexicon used to describe dreams qualitatively (Busink & Kuiken, 1996). Although this created some challenges with respect to consistency in dream research, it has also had the beneficial effect of opening up research into dreams to include a variety of perspectives and novel approaches that have not been restricted to a single definition or point of view. As such, dreams in the last few decades were studied in a kaleidoscope of ways and combinations in different academic and scientific disciplines including psychology, neurology, religion, and anthropology. Some of the ways used to research dreams included from the perspectives of emotion, consciousness, memory, or physiology associated with dreams (Bulkeley, 1995, 2000, 2008; Dement, 1999; Freud, 1976; Garfield, 1988; Hall & Van de Castle, 1966; Hartman, 2008; Hill, 2004; Hobson & McCarley, 1977; Hobson et al., 1998; Jung, 1976; Knudson, 2001, 2006; Kuiken et al., 2006; Kuiken & Sikora, 1993; Revonsuo, 2000; Tedlock, 1992, 1999). Despite the existing research, the question still remained: Could dreams be intentionally manifested and used to prompt behavioural change? This became the central research inquiry for this study.

In order to answer this question, this study began the inquiry whether the three dream elements could be used to promote behavioural change. Specifically, this study was focused on the possibility that the power of dreams to function as a proxy for real life experiences may come from three key attributes of the dream state: emotion, narrative, and reality. In the research on life-altering dreams, these three common and potentially

replicable characteristics of dreams were present (Bulkeley, 2008; Kuiken, 1995). The goal of the current study was to understand the association between emotion, narrative, and reality in dreams; how these elements interact with each other; and how to trigger each element within the dream state intentionally in order to effect changes in waking behaviour. The study data were also reviewed to see how waking behaviour was manifested inside the dream state and if there was an effect generated from the dream content on waking life the next day. In this study, lucid and non-lucid dreaming were both analysed in the exploration of these three dream characteristics. What follows are the summary of findings, recommendations for future studies, and conclusions of the study.

## **5.2 Summary of Findings**

The collection of narrative data from the two dream participants was successfully completed. These data were presented in Chapter 4 after analysing each of the chronological stages of the study. These stages included the pre-study interview, the participants' systematic entry of dream narratives into their dream journals, and the post-study interview. The data collected allowed the participants to present their perspectives of their dreams and, upon waking, also analyse the meaning of their own dream experiences.

In this study, the participants explored some of their current behaviour goals during the pre-study interview and then recorded seven to ten nights of lucid and non-lucid dreams in a dream journal. The data were then analysed to (a) explore the relationship of the three characteristics of emotion, narrative, and reality in the participants' dreams; (b) determine if their dreams had any influence on their behaviour

in subsequent dream narratives or in their waking lives; and (c) determine any relevant emerging themes from the study data. The section below summarizes the main findings and conclusions as they relate to the research question and objectives, beginning with the three elements of dreaming (emotion, narrative, and reality) and then moving into other findings relevant to the scope of the current exploration. The discussion that follows includes both the combined, consistent results among the participants and the unique findings of each individual participant as they relate to the broad and emerging themes within the data.

### **5.2.1 Summary of Interactions with Dream Characters**

The participants' dream characters, real or imagined, had three significant functions in impacting a dream: the dream characters were able to elicit emotions, trigger behavioural reactions, and affect the direction of the dream narratives. These dream characters had an affect on all three of the core dream elements of emotion, narrative and reality. Therefore, a dream character may be a reasonable resource for a lucid dreamer to intentionally alter, trigger, or influence dream content and/or any of the three core dream elements.

The first significant function that was noted was the way in which dream emotion was elicited by the dream characters. There were various aspects of an emotional response to the dream characters that emerged from the narrative analysis of the data. The interaction with the dream characters affected the emotions and behaviour of the participants. The dream characters were able to evoke emotional reactions at varying levels of intensity from the dreamer simply by the dream character's presence, or as a reactive response to the dream character's behaviour. The dream character's presence

evoked an emotion either through an automatic habitual response to a real person in the dreamer's life, such as the participant's mother or children, or the emotion was evoked from the dream character's role in the dream narrative such as a love interest or an ominous threatening character. Many of the interactions with dream characters were conversational and appeared as information seeking conversations, relational interactions, or emotionally impactful conversations. However, physical interactions (or the threat of physical contact) were also common in the dream narratives. The majority of dreams contained one or more real or imagined dream characters; there were very few solitary dreams. Dreams which started off as solitary often changed to introduce dream characters fairly quickly in the dream narrative. This supported the sense that dream characters were a consistent presence that had a significant impact on a dream. As dream characters additionally were a primary source of emotional and behavioural reactions, the characters could be used in a potential dream method to alter or trigger the emotion, narrative and behaviour of a dreamer.

The character interactions reflected the importance of emotion in shaping a dream narrative; all of the data that emerged on emotion confirmed its importance as one of the three core dream elements. A dreamer's waking life emotion and content, such as interests, hobbies, people, settings and other content, were found to carry into the participant's dreams. However, it was also found that the *emotion from dreaming* could carry into and affect the participant's waking life. One participant adapted a dream emotion into a behaviour in waking life as an intentionally manifested *emotional experiential reference* of the desired dream emotion which was discussed as a valuable finding in the study.

There was an abundance of information on dream emotion that was analysed. The two participants, Paul and Thomas, had a variety of emotional reactions that they recorded in their dream journals and noted in their post-study interviews. Emotions are one of the key characteristics of dreaming (Bulkeley, 2008; Kuiken, 1995). While the participant or dreamer may not remember the dream itself, the dreamer is sometimes able to identify the emotions from the dream; indeed, dream emotions can carry into waking life (Busink & Kuiken, 1996; Schredl & Reinhard, 2009; Strauch & Meier, 1996). However, it can also work the other way, with waking life content affecting the dream narrative.

This seemed to be the case with both participants. Thomas's anxiety shaped the plots of his dreams into anxiety dreams and Paul's affectionate and empathic emotions shaped the plots of his dreams as they related to his dream characters. Although intensity did have a significant effect, this ability to shape emotion was not based solely on the intensity of the emotion, as calm emotions could also affect the narrative. In one dream, Paul did not recognize the setting and it did not feel like his own home. However, his emotions did not intensify in the unfamiliar setting: he simply accepted it as the current environmental setting. This was reflective of Paul's calm emotional reactions.

In many of Paul's dreams, he reported being content, emotionally balanced, calm, and sometimes happy. Only a few of his dreams increased his stress level, but those levels of stress and concern did not seem remarkable and did not elicit high degrees of reactivity on the part of Paul. Both Paul and Thomas noted only some instances of emotional intensity in a few of their dreams. It was the case that the intensity level of the emotion within the dream affected the dream content; dream emotions have the ability to

shape the narrative of the dream. Hobson et al. (1998) stated that '[e]motion is a subjective experience that is intensified in dreams' (p. 3). In Paul's and Thomas's dreams, it seems that dream stories were driven by emotion; emotion even shaped the dream story content, but it did not require intense dreams to accomplish this narrative direction.

Further, there were an equal number of dreams where an emotional response to the dream narrative manifested and, thereafter, the emotion began to shape the rest of the narrative, showing that in dream content, as with waking memory, there is a bias toward emotional stimuli to draw focus and the attention of the individual. The dream narratives were shaped in a combination of emotion, characters, and setting. The settings had a lesser impact on emotion since the dream landscape could be either bizarre or familiar, yet there was an immediate emotional acceptance of the dream environment. Paul's narratives tended to be reflective of everyday happenings, even if the setting was not reflective of the exact surroundings of his waking life. For instance, some of Paul's dreams appeared on a construction site, in a home which was not his own, or in a garage. Hobson (1998) noted that

...dream emotion is usually consistent with the dream narrative and bizarre incongruities between emotion and narrative are rarer than incongruities among other dream elements and can be explained by viewing dream emotion as a primary shaper of plots rather than as a reaction to them. (p. 3)

An emotional lived experience within a dream may provide an accelerated way to produce behavioural change. This emotional part of the study provided a better understanding of how to trigger emotion before and within the dream and how to trigger the spontaneous reminiscence of dream emotions in waking life for the participants. The

emotion-related data also provided valuable information on creating more in-depth studies of emotion in dreams in the future. The study results indicated that emotion was successfully used as an experiential reference by the participants, revealing a new way in which dreams could be used for behavioural change. The next section discusses the second dream element, dream narratives.

### **5.2.2 Summary of Narrative Structure**

Dreams are powerful because they are the most engaging kind of story, a story that personally, physically, and emotionally involves the dreamer. More so than any book or film, a dream is a fully activated life experience in which all of the senses are engaged and impactful emotions are experienced by the dreamer. The analysis supported ‘narrative’ as one of the three core elements of dreams and provided information on how the dream narratives were formed and influenced. The observation for both participants was that the time, setting, and first person perspective of the dream allowed the dream to be so realistic that it seemed like a lived story unfolding moment to moment.

In many cultures, the power of dreams is that they are stories, experienced and believed by these cultures to be a form of reality (Tedlock, 1991). This reality was also experienced by the participants, but the dreams also became a part of their life stories, a living narrative. While stories have been used by cultures to educate, pass down history, and provide moral teachings and lessons (Boadu, 1993; Sims & Stephens, 2005), the oral transmission of stories took place long before written traditions and were in the form of myths, legends, and fables (Sims & Stephens, 2005). However, these stories were not isolated to villages and communities, but included personal life stories. The participants’ experiences also showed dreams that reflected the dream narrative as having life story

qualities. The dream narratives could shape both the storyteller's life, and the lives of those who heard the story (Samuel, 2005). In addition to the dream being a living event, the participants also found meaning in their dream narratives. This ability to assign meaning to a story is another one of the elements that make dreams powerful as a potential method for behavioural change.

A dream story has the same ability as other stories to change the dreamer's beliefs about themselves and even the meaning they assign to their life story. In fact, the attachments people form to their personal stories are carried with them into their advanced age (Kenyon, Clark, & De Vries, 2001), bringing with them either a feeling of satisfaction or discontent with regard to their lives as a whole (Kropf & Tandy, 1998; Kuhl & Westwood, 2001). Resolution, reframing, or 're-storying' of the meaning one has given to one's life narratives can result in a transformation of one's perspective (Freeman, 1997, 2000). This kind of story transformation can bring comfort in end-of-life preparations (Kenyon & Randall, 1997). Even the act of telling one's cumulative life story in advanced age can reveal meaning to the narrator (Bianchi, 2005), and a life review is often part of the process of coming to terms with life choices and finding resolution (Butler, 2007). Memories of past trauma, regrets, mistakes, or difficult choices need not be negative (Garland, 1994). A person can empower his or her life story by adopting the perspective that aging does not create regret, but rather a great wisdom that can accompany an experience (Randall & Kenyon, 2001).

It is not necessary to wait until late in life to reframe a life story. Changing an autobiographical story, personal myth, or personal narrative can be done at any time during one's life when the connection between the story and the adopted meaning are



recognized (Kenyon & Randall, 1997). Dreams have the same ability to be retold, re-storied, and to shape the lives of the dreamers. How these dream narratives are formed and how they might be altered was the consideration of this study.

The findings reported in Chapter 4 regarding narrative structure are consistent with the use of dreaming for behavioural change. Participants' dreams were frequently set at their present age, lived as a first person participant, in familiar settings, consistent with the continuity hypothesis (Domhoff, 1996, 2003) and aspects of this study's evaluation framework. They also contained an element of transformational control: both participants reported the ability to transform the setting and continue with the dream narrative while remaining conscious of the experience. This finding led to an important observation: participants who achieved consciousness in the dream still experienced the dream as real, even when they knew they were dreaming, a point which is consistent within the study framework of dreams experienced as reality (Kahan, 2011). Additional research is needed to develop techniques to alter dream content to create a lived experience related to the dreamer's behaviour goals. By doing so, the dream environment would remain realistic and could continue to serve as a real life experience.

Since dream narratives are inherently unpredictable (LaBerge, 2004), one of the challenges in developing a dream-based method to effect behavioural change is to find a way to include a specific behavioural experience while keeping the dream narrative fresh, unscripted, and realistic enough to create a lived experience available to conscious memory. While dreams are unlikely to have an intended narrative, the results associated with the participants' experiences suggest it is possible for a dream narrative to play out a rehearsal, reinforcement, and strengthening of habitual behavioural patterns. More

importantly, the dream narrative obtains meaning not just from the lived experience, but also through the meaning given to the narrative by the dreamer upon waking.

### **5.2.3 Summary of Sensory and Physiological Stimulus in Dreams.**

Of the three dream elements, reality was most influenced by the sensory and physiological stimulus in dreams. Physical sensations, sight, smell, and taste are present in dream states in a manner that mirrors the waking experience (Erlacher & Chapin, 2010; Kahan & LaBerge, 2011), and this was relevant within the study as evidence of how dreams were experienced as reality. The dream state combines the physiological and cognitive functionality that dreamers experience as genuine virtual reality (Erlacher & Chapin, 2010). The presence of physiological sensations combined with an interplay of emotions is also a core feature of creating a sense of reality (Bosnak, 2007; Stickgold, 2005). Lucid dreaming supports these sensory experiences and exists as a potential method to enhance and actively construct reality within a dream-like state. Dream states provide a semi-controllable environment and dreaming can serve as a proxy for lived experience as well as a portal for introducing behavioural change using experiential learning.

Sensory experiences were connected to creating a lived experience for the dreamer by adding a physical reality. In a dream, experiential learning refers to skill or behavioural learning through a physically connected experience or by a full sensory life experience where an individual lives out an episodic event (Datillo, 2000; Luckner, & Nadler, 1997). The results from the study show that a sensorially stimulated environment enhances and influences the narrative and reality of the dream state, becoming a significant component to consider when developing a lucid dream method. Lucid

dreaming might focus on controlling the discrete steps such as watching, thinking, feeling, doing, and controlling the dream environment and characters; these procedural steps might be systemized to add a sensory or physiologically induced element to help accelerate learning and behavioural change.

#### **5.2.4 Summary of Lucid Dream Manifestation**

The use of lucid dreaming to gain control over waking impulses or behaviours and to deepen one's spiritual consciousness has been reported by Native Americans and some sects of Buddhism for centuries (Gyatrul, 1993; Tedlock, 1999). Despite this fact, very little attention has been paid to lucid dreaming as a therapeutic tool, and few individuals in the academic and scientific professions believed lucid dreaming existed as a distinct phenomenon until the last few decades (LaBerge, 1980b; Wilkerson, 2000). The LaBerge study in 1980 scientifically confirmed that the ability to influence the dream environment and dream elements during lucid dreaming is a skill. The present study aimed to connect dreams and lucid dreams with waking behavioural change by using the potential for lucid dreaming as a tool for creating behavioural change. This was based on both behavioural and conceptual theories relating to expressing behaviour in waking life from dreams.

This study confirmed the difficulty associated with finding or developing an effective and consistent way for a person to initiate lucid dreaming. Training to become an advanced lucid dreamer can be arduous and time-consuming (LaBerge, 2003). While it does come naturally to a select few (LaBerge, 1989), the vast majority of the general public may find the techniques involved with lucid dreaming to be more labour intensive than the effort they are willing to put forth. This was one reason for the current need for

the development of a dream technique, as it would be beneficial to individuals who need an easier but still controlled form of a lived dream experience. It was also one of the benefits of this study, because each study that researches ways to use lucid dreaming brings lucid dreaming one step closer to a point where it can be reliably and systematically stimulated.

Specific barriers to using lucid dreaming as a reality-inducing vehicle to achieve behavioural change in a therapeutic setting rest on four major issues. First, not everyone has the same ability to recall dreams. Second, and along these same lines, not everyone has the same ability to manifest lucid dreams. Third, lucid dream training can be effort intensive. It takes a significant amount of time to learn as a skill and it requires multiple attempts to initiate. Even with an advanced practitioner, there is no current method that is completely dependable in manifesting a lucid dream. Fourth and finally, dreams have their own unpredictable and non-directable qualities, even in lucid dreaming.

As shown in this study, some of the difficulties in achieving lucid dreams arose because the experience was wholly dependent on the dreamer and could be easily influenced by factors outside the dreamer's intentions. Outside factors may affect recall or lucid dream manifestation since emotions generated by outside factors can either trigger or hinder both the lucid dream state and lucid dream content. A lucid dreamer who is particularly stressed or depressed may have a decreased ability to generate a lucid dream (Brooks & Vogelsong, 2000; Karim, 2010). This was the case with Thomas, as he felt that both the pressure of the study and the stress of his relationship with his mother in his waking life negatively affected his ability to manifest lucid dreams.

Lucid dreaming in this study could not be consistently implemented by the

participants due to multiple factors, including their inability to control the dream content, the inability to produce a lucid dream on cue, the instability of the dream images, the fluctuating ability of the lucid dreamers, and the unpredictability of dream-altering conditions outside of the dreamer's knowledge or control. With lucid dreaming, a dreamer may excel one night, and then fail to achieve any lucid dream state or goal on another. However, while at first these challenges may seem discouraging, every single one of these limitations is temporary and based on current lack of knowledge on how to use, manipulate, or induce lucid dreams. It is not a failure of *the potential* of lucid dreaming, only a failure of the current knowledge and techniques to produce lucid dreams as desired.

Studies have reported that 57.5% of people have had a lucid dream in their lifetime (Gackenbach, 1991), and these are the dreams which have been remembered. There are many more which have been forgotten (Gackenbach, 1991). This means that potentially half the population will remember experiencing a lucid dream at some point, and barring any injuries or cognitive issues with the brain, the other half has biological potential (Gackenbach, 1991). While only a small percentage of people have acquired advanced lucid dreaming skills, this is often due to lack of interest in dreams rather than a lack of potential ability to lucid dream. The existence of the skill has been confirmed, and thousands of individuals are presently working toward achieving lucid dreaming, as evidenced by lucid dreaming Internet sites such as [lucidity.com](http://lucidity.com) and [world-of-lucid-dreaming.com](http://world-of-lucid-dreaming.com). A review of these forums indicates that people who are interested in lucid dreaming use it for personal inquiry, physical escapades such as flying and sex, bending and altering the physics and physical properties of the dream world, interacting and

holding intellectual conversations with dream characters, and hundreds of other different goals, some spontaneous and some planned (LaBerge & Rheingold, 1990; Waggoner, 2008).

It is possible that persons from the general public can achieve lucid dreaming as a skill by using attention exercises and memory devices to increase their ability to cognitively focus their prospective memory (Purcell, Mullington, Moffitt, Hoffmann, & Pigeau, 1996). Studies have found that there are even great benefits to practicing lucid dreaming; for example, people who lucid dream have an increased ability to focus and maintain attention as well as increased creative and problem solving skills (Schredl & Elacher, 2004). Another benefit is that lucid dreamers have been shown to have a higher dream recall than normal populations (Wolpin, Marston, Randolph, & Clothier, 1992). The ability to lucid dream may be due, in part, to training and practice, as well as qualities such as creativity and the ability to become absorbed in the moment or to focus and ignore distractions (Blagrove & Hartnell, 2000). Some studies show the lucid dreaming ability may be linked to the ability to perform certain cognitive tasks (Blagrove, Bell, & Wilkinson, 2010; Neider, Pace-Schott, Forselius, Pittman, & Morgan, 2011). Lucid dreaming as a skill can be increased by using attention exercises and memory devices to increase the ability to cognitively focus on lucid dreaming and achieve higher results (Purcell, Mullington, Moffitt, Hoffmann, and Pigeau, 1996). So people who already have these attributes of creativity and focus are more likely to have greater skill in lucid dreaming. However, it is also true that the *use* of lucid dreaming can *increase* these attributes in people who use lucid dreaming.

For the general public, motivation is the biggest barrier to using lucid dreams, as

an essential part of being able to lucid dream is the time required in learning how to lucid dream (LaBerge & Rheingold, 1990). If it is possible that an easier method to lucid dream on command might someday be developed, therapy patients or even the general public may be more likely to want to engage in lucid dreaming, since currently people do want to put in the intense amount of months or years of dedicated training and practice to acquire lucid dreaming as a skill. If a technique is developed whereby less effort can be put into lucid dreaming, more people may choose to do it. If studies like this one continue to make advances toward the understanding and use of lucid dreaming as a dream technique, more people are likely to begin using it as a tool once it is easier to do. Further, lucid dreaming even now is one of the most valuable and used techniques to study dreams. Suffice to say, the difficulties with lucid dreaming are not that the lucid dream space is not capable of providing a behavioural change experience; rather, at this time it is not known how to easily access lucid dreaming through a method which is available to the vast majority of people. For now, lucid dreaming is currently a valid, valuable, and employable technique for dream research. However, there may also be ways to mimic or replicate dreaming until lucid dreaming can be used to its fullest potential.

As methods are discovered and evolve to use lucid dreams in a stable, consistent way, an entire new world of experience will open up for researchers and therapists to use the lucid dream state for complex situations, rehearsal, experiments, and experiences. Dream researchers have begun consistently using ‘onironauts’, professional lucid dreamers, to carry out various experiments and research studies that take place inside the

dream state. As a result, lucid dreaming is valuable in many ways for use in creating waking behavioural change.

### **5.2.5 Summary of Behavioural Effects of Dreams**

The most significant behavioural effects came from the emotional experiential references, the meaning making created by the dreamer, and the potential of dreams to act as a rehearsal space each of which was discussed at length in the findings.

As the data were analysed, it became apparent that the research participants were making a distinction between an experiential shift from living out a dream narrative and a meaning-making shift that was obtained when the dreamer would retell, recalling or analyse the dream on waking. The experiential shift was based primarily on the impact of the experience, but an additional and sometime more prominent contribution to the dreamers life came from the meaning that was given to the dream experience or dream story by the dreamer.

A dreamer's personal connection to their dream may be a determining factor on whether the dreamer believes the dream has a deeper meaning or message. While autobiographical memories may not be wholly consciously accessible, fragments do make their way into the dream landscape which "introduces autobiographical or historical background that could lead to surprising acts, thoughts, or feelings of particular protagonists" (Ochs & Capps, 2001, p. 131). The meaning-making benefits for the participants were based primarily on the meaning, mindset, or interpretation the dreamer placed on the dream experience rather than the adrenaline rush, euphoria, or other physically induced and emotionally heightened experiences associated with the dream state. These two kinds of shifts could potentially be combined to work in a



complementary way to help overcome or produce a new behavioural habit that cannot often be overcome by sheer force of will or with the individual use of cognitive interventions.

By analysing their dreams or finding intuitive meaning to the dream, the participants found that their eventual waking behaviour was not simply a habit or reaction to overcome, but was also a mindset that accompanied the behaviour in which they were able to intervene. In a developed dream method, both the experience and mindset could work in tandem to produce behavioural training and opportunities for the participants to intervene in their habitual reactions. As discussed earlier, the participants were also able to use an emotional experiential reference that also had a conscious cognitive element. This study was a first step in exploring if dreams could be used as a lived experience to give the participants a memory of what it would feel like to successfully accomplish an experience with the desired behaviour. However, when analysing the narratives, it became clear that there was also a mindset and personal meaning given to the dreams on waking that were important factors in how the narratives affected waking life and could be used by dreamers to facilitate mood and behavioural changes.

In general, the participants' narratives tended to be in everyday settings and they were interacting in various relationships, real and imaged. Most of these dream narratives appeared as episodic fragments going from one situation to another. The narratives were always associated with an emotion and the dreamer lived out the event and had subsequent reactions to the dream stimuli or situations. The study showed the ease of transition the participants had from one dream scene to another even as it often produced a completely different setting or emotion. This meant for the study that if a method could

be found for changing the dream scene to a desired one involving the targeted behaviour it would not necessarily cause a disruption in the realism or continued narrative format for the dreamer. The dreamer would accept the new scene as if it had always been there, providing for a smooth transition to the desired narrative involving behavioral change.

Although dreaming showed no clear success in inducing any new automatic behaviour modification for the participants during the week, the experiences did bring an added awareness of the target behaviour to the participants, which in turn induced *conscious* behaviour-related shifts either in momentary thought or momentary action. Dreams can lead to personal awareness and insight (Kuiken, 1995; Kuiken et al., 2006). The ability to become absorbed in the moment or a situation is similar to waking life and dreamers exhibit reflective thought, planning, anticipation, and self-dialog similar to those they demonstrate while awake (Kahan, 2001).

Benefits gained by the participants included results due to a rehearsal effect rather than as a stand-alone lived experience. This can be seen as the results acquired began to fade as the week went on, with Paul's emotional experiential reference. It is essential to form a link between an impactful dream and its relevance or meaning to the dreamer's life (Knudson, 2001). Paul's intentional use of dreams for behavioural change revealed that a primary need in an individual's life was for consistency and support to rehearse the new behavioural response. This key rehearsal element is often missing in rooting for a new behaviour during a window of opportunity, when the participant is most primed to change the behaviour.

After the participants had gone through the dream experiences, their emotions, experiential references of the new behaviour, and mind-sets were primed for change, but

they needed help reinforcing the new behaviours as these supportive reference tools began to dissipate. In addition to creating the original profound dream experiences, lucid dreaming may ultimately be able to help provide the rehearsal space needed to reinforce desired behaviours. Many studies have suggested lucid dreaming as a space to practice skill rehearsal (Erlacher & Chapin, 2010). Brain plasticity occurs during sudden behavioural changes from experience and mental shifts; however, rehearsal can also change the neurology of the brain (Kolb & Whishaw, 1998). In fact, with 10–20 minutes of practice, the motor cortex reshapes itself in a matter of weeks (Karni et al., 1998). Dreams have also been studied and found to alter the neurology of the brain in a staggering number of ways (Schatzman, Worsley, & Fenwick, 1988).

Action or behaviour in a lucid dream state creates the same physiological response and recording in memory as taking the action in waking life (Schatzman et al., 1988). Connections between lucid dreaming and both procedural memory and involuntary psychological activities such as heart rate have been demonstrated (Erlacher & Schredl, 2008; Erlacher, Schredl, & LaBerge, 2003).

Studies have shown that lucid dreams are a good setting to conduct mental rehearsal much the same way that athletes use their imaginations for mental rehearsal of their sports skills (Erlacher, 2007; LaBerge & Rheingold, 1990; Tholey, 1990). These studies revealed that runners, tennis players, and other athletes were able to improve their skills by the experiential and mental rehearsal inside the dream (LaBerge & Rheingold, 1990; Tholey, 1990). In these states, while the body remains physically at ease the neurological connections for the movement still fire (Erlacher, Schredl, & LaBerge 2003; Erlacher & Schredl, 2008). This mental practice improves performance (Driskell,

Copper, & Moran, 1994). The environment, physical body of the dreamer, and even time and space can also be altered in ways that are physiologically impossible making the experiences and lives lived in dreams unlimited. Dreams have heightened awareness and an increase in internally generated sensory stimulus causing the perceived physical reality of a dream. Brooks and Vogelsong (2000) assert that advanced lucid dreamers can do everything from control the environment, plots, and objects in a dream to creating an entire scene from scratch. They also maintain that simply controlling their own reactions to dream content will impact that content (Brooks & Vogelsong, 2000).

The potential to manipulate the dream environment, the physical body of the dreamer, and even the dreamer's perception of time and space can create the physiologically impossible, making the experiences and lives lived in dreams unlimited. The dreamer's influence over dream content seems to be related to the amount of conscious attention placed on the dream content, whether intentional or not. For instance, lucid dreamers who attempt to pay attention to numbers on a dream clock or words in a dream book often see those words and letter morph right before their eyes (LaBerge, 2003). The more advanced the lucid dreamer's skill, the more control they have over how the content morphs or what it morphs into, so the ability for lucid dreamers to influence all areas of a dream certainly exists. This transformative ability makes it a reliable space for rehearsal of procedural skills and behaviours.

In this study, the benefits of dreaming were made clear by both participants. Both were able to recognize dream signs; both were able to successfully use a transition gateway to get from one dream scene to another; both were able to consciously and intentionally alter their dream environment, dream body, and dream characters; both were

able to articulate the effects of dreams on their waking thoughts and behaviours. Lucid dreaming is a powerful tool with potential uses just waiting to be explored and discovered further. Both participants had experienced profound dreams in the past that remained in their memories and have had an impact on their emotions and thoughts (Kuiken & Sikora, 1993). Both found that their dream experiences and the meaning they gave to their dreams affected their lives in profound and positive ways, confirming the assumptions of Kuiken and Sikora (1993) concerning impactful effect of dreams on a dreamer's emotions and behaviour. The journey to find a way to create those dreams systematically has now begun and the future is full of possibilities. The next step is to continue to explore those possibilities and recommendations for future studies.

### **5.3 Recommendations for Future Studies**

#### **5.3.1 Dreaming Toward the Future**

In concluding the study, the dream space is still considered to be a potential tool for lasting behavioural change. However, until more discoveries are made that allow a dreamer to incorporate the necessary elements of emotion, narrative, and reality into a dream, the ability to use a dream to create a lasting behavioural experience in the waking world is limited. Discovery of the necessary knowledge to move forward in this emerging experiential field may come from additional studies on the various dream components and their intensity levels or on choosing completely different dream elements than those chosen for this study. Advancements may also come from unexpected places, such as current experiments with brain stimulation.

### 5.3.2 Ways to Stimulate the Brain to Dream

In the future, it may be possible to influence dream elements and narratives by actively stimulating the memory or emotion centres of the brain by using targeted electric or magnetic impulses (Young, Camprodon, Hauser, Pascual-Leone, & Saxe, 2010). In recent research studies, scientists were able to trigger memories, emotions, and problem-solving skills by sending impulses to specific parts of the brain (Chi & Snyder, 2012). This was achieved in part with an emerging technology called transcranial direct current stimulation (tDCS). Other researchers were able to temporarily influence the moral judgments of participants with magnetic impulses (Young et al., 2010) as a way to suppress the emotional processing limbic system (Knock et al., 2006). As the use of these different technologies to alter brain function are explored, it may be possible to use the emerging technologies to assist a dreamer in creating a dream narrative that incorporates emotions, memories, and desired behavioural responses on demand.

The use of these emerging technologies may create a future where, when someone enters dream sleep, there will be a therapist waiting who will be able to send an electrical impulse at just the right spot in the brain to trigger self-esteem, boost euphoria, or trigger a specific narrative or behavioural response that would create a successful lived experience in overcoming a dream challenge for the dreamer. As brain science evolves, this becomes more of a realistic possibility than science fiction. Current studies show that a transcranial magnetic stimulation (TMS) pulse to a specific part of the brain will change a person's moral judgment toward another person (Young et al., 2010), while an electrical impulse to another part of the brain can be used to temporarily paralyze a specific part of the body (Ethier, Oby, Bauman, & Miller, 2012). Still other stimulations

can activate memories, emotions or problem solving skills (Chi & Snyder, 2012; Mace, 2007). There are a variety of stimulations that can be used, ranging from the electrical and magnetic to the chemically- and drug-based (Chi & Snyder, 2012; Ethier et al., 2012; Mace, 2007; Young et al., 2010). The use of these stimuli have been shown to result in immediate alterations or enhancements while the person is conscious and aware, thereby giving him or her the ability to experience with full consciousness the noticeably-induced changes and record those experiences in memory.

With the development of brain-triggering mechanisms, a therapist's role may transform from one of talk therapy to *activated experientials*, including *neurological triggering* where parts of the mind are intentionally stimulated in the dream state to produce emotions, reactions, memories, and even self-esteem. It may even be the case that these dream-state triggered stimuli can carry over into the waking world as manifested behavioural changes.

It is not yet known if the incorporated dream elements are correct, or if they are being applied with the correct intensity. While the participants in this study exhibited some degree of behavioural awareness, this is more likely due to the insight and interactive discussions than the dream experiences themselves. As the methods to induce lucid dreams in a stable and consistent way are discovered and evolve, an entire new world of experiences will open up for researchers and therapists to use the lucid dream state for complex situations, rehearsal, experiments, and experiences. In order to get to that goal, the following section has recommendations for specific future studies and potential methods to incorporate into those studies.

### **5.3.3 Recommendation for Specific Behaviour-Related Dream Studies**

The field of dream research is wide open and steadily emerging as a potential method for behavioural change. Researchers have already determined that dreams and sleep are part of the learning and behavioural change processes (Stickgold et al., 2001; Walker et al., 2002; Wamsley & Stickgold, 2011). What remains is to derive a mechanism by which dreams can be used to shift behaviour and strengthen learning. On the basis of this understanding, the following recommendations are put forward based on the results of this study. It should be noted that, as with most studies, more questions were raised than answered in this investigation, along with the exciting possibility of using dreams for behavioural change. For those interested in studying dreams in the capacity of altering behaviour or beliefs, there is fertile ground for many different dream studies and also studies on more efficient and alternative dream-replication methods.

Future researchers in this area may wish to inquire into other possible elements that can influence the dream state which were not considered within this study. Future researchers may also wish to explore finding the most powerful combination of experiential dream elements, or what other dream elements are potentially useful or even critical to an experiential model of change. As part of this line of thought, future researchers are encouraged to consider the optimum intensity needed for dream characteristics such as emotion, as well as levels or categories of reality in a dream needed to be for a dreamer to establish lasting change. Along these same lines, understanding the processes that would need to be put in place to maintain, rehearse, or reinforce a change in behaviour/belief that occurred during a one-time experience might also be considered. The relatively short time-frame under which this study operated, and



the outcomes associated with the relatively short time-frame suggest that future researchers should consider the quantitative aspects concerning the length of time regarding a direct comparison between waking and dreaming experiential models. The amount of time needed to enact a behaviour change should also be considered.

Despite the countless resources and personal examples of undirected spontaneous dreams having a profound, life-changing, or behaviour-influencing effect (Dement, 1999; Garfield, 1988; Hill, 2004; Kuiken et al., 2006; LaBerge, 1993, 2004), there is a noticeable lack of studies that address the question of whether dreams can be used to modify behaviour. The potential for using dreams to influence or change behaviour is substantial and should be explored from different perspectives to get a better understanding of how dreams can be and are currently being used to modify behaviour.

There are some notable changes in the field of dream research which indicate that there is a shift toward opening up the use of dreams in innovative ways and toward adapting dreams for intentional use (Krippner, 2002; Rosner et al., 2004). This shift includes cognitive behavioural therapy (CBT). Cognitive behavioural scientists are a growing group of researchers who have begun focusing more on dreams and their potential applications in behavioural situations (Krippner, 2002; Rosner et al., 2004). Dreams have shown that waking life emotions and habitual reactive patterns consistently present themselves inside the dreaming world, perhaps even reinforcing or conditioning the neurological behavioural or emotional response patterns. Dreams that can interrupt and replace these undesired behavioural patterns by replacing them with desired responses may provide a neurological retraining of those patterns. As Azrin and Nunn (1977) noted, 'an old habit can be broken by replacing it with a new, more desirable

habit' (p. 20).

In order to assist in changing, adapting, or interrupting old behavioural patterns and reinforcing new patterns, there needs to be a system developed to intentionally use dreams. Currently, the dream state that would be most pliable to intentional changes is lucid dreaming. In order for lucid dreamers to change dream content more successfully, a variety of procedural methods and tools that the dreamer can use inside the dream state may be needed. Below is a list of recommended dream tools that evolved from the data in this study that should be studied to determine their viability, effectiveness, and potential for actual use within the construction of an actual dream method for behavioural change.

#### **5.3.4 Behavioural Tools**

It is the case that the dream experience can provide a catalyst for behavioural change (LaBerge, 1989) by creating an opening for a new experience or reinforcing of a desired behaviour, but this must be done inside the dream, without manipulating, controlling, or structuring the *entire* framework of the dream experience. As seen in the data from this study, only a small portion of the dream content can be changed at any one time. In order to accomplish allowing the dream narrative to unfold independently but still maintaining the focus on a behavioural goal, there needs to be some kind of behavioural tools that would allow dreamers to potentially use these tools inside the dream-state to bring the focus of the dream narrative to the desired behaviour.

Once the desired behavioural goal is identified by the dreamer, the dreamer could potentially be equipped with behavioural dream tools that would help them access a dream narrative with the desired behaviour triggers inside the dream. This would include the ability to change the dream scene, manifest a behaviour trigger, and manifest a

desired emotion inside the dream state. To that end, I have worked on developing three specific techniques that might help the dreamer change their dream narratives toward their targeted behaviours. I named these three techniques an *emotional anchor*, a *challenge trigger*, and a *transition gateway*. These conceptual tools were based on the participants' results from this study and were also rooted in existing literature.

Briefly, the first tool is an emotional anchor, which is a stimulus that elicits a desired emotion in the dream state. The second tool is a challenge trigger which is the manifestation of a stimulus that would typically trigger or test an undesired emotion or behaviour within the dream. Emotional anchors and challenge triggers are intended to affect the narrative within the dream without completely controlling the storyline itself. Using these primary tools, the participant could summon up the challenge trigger and use their emotional anchor either before or after the challenging scene as a way to help them successfully overcome the challenge using their desired behaviours. The third tool is a transition gateway, an element in the dream intended to be used in cases where the dreamer needs help getting to their intended dream narratives. The transition gateway acts as a portal from one dream scene to another. The specifics for each of the three dream behavioural tools are discussed in detail in the following sections.

#### ***5.3.4.1 Emotional Anchors***

As described in the results section, each of the participants described a feeling or sensation that was generated in their body when they were exposed to an upsetting behaviour trigger, but they were also able to identify the positive sensations for behaviours they wanted to manifest. The development of an *emotional anchor* may help in directing or triggering the desired emotion inside the dream state, helping the dreamer

manifest strong positive emotions that correspond with their desired behaviour and therefore helping them to manifest or rehearse the desired behaviour. The concept of an emotional anchor was partially derived from practices and theories used in neurolinguistic programming (NLP). The practice of using ‘anchors’ as a way to prompt behavioural responses and changes was first developed by practitioners of NLP (Bandler & Grinder, 1979; Dilts & DeLozier, 2000).

The idea behind an ‘anchor’ is that an emotion or behaviour can be brought into awareness or triggered by connecting the emotion or behavioural state to a unique physical stimulus; for example, by touching a specific spot on one’s shoulder or pressing hands together in a unique way. The idea is to connect the physical stimulus with an emotional response and then to have the desired feeling fire off when the anchor is later activated by the specific triggering touch (Bandler & Grinder, 1979; Dilts & DeLozier, 2000). The use of an emotional anchor requires that the anchor should not be something that is commonly activated or pre-conditioned by daily use. For example, a person should not choose a handshake as an anchor, since its routine use would prevent activating the anchor uniquely for the desired stimulus.

While the idea of an emotional anchor was derived from NLP theory, the traditional NLP methods were not necessarily followed to create the emotional anchors for dreams. That is to say, there may be far less training and practice in a dream method than would be found in an NLP session, as a typical NLP session would take weeks, if not months, to complete. The dreamers might have identified an existing emotional anchor associated with a specific behaviour and performed a generalized visualization of what it would be like to use the anchor; so while the participants clearly knew what their

emotional anchor was and how it felt when the anchor was activated, the anchor may also need to be drilled into their immediate responses, as it would have been using traditional NLP methods.

Also, unlike NLP, emotional anchors for dreams should not be arbitrarily chosen using an unrelated physical stimulus, but instead might be intentionally chosen by the participants through a process of questioning, discussion, and experiential exploration. This process allows participants to select anchors that are *already* associated with a physical reaction that is linked into desired feelings. For instance, one participant discovered that when he felt confident, a very specific smile would brighten his face along with lifting his posture. If he wished to trigger this feeling, he might recreate this very specific smile, which would become his emotional anchor inside the dream state. To fully develop a method of using an emotional anchor, it is important to consider that individuals have very different emotional reactions to the same experiences, which means that each person's threshold for emotional reactivity to an event also needs a different level of stimulus (Davidson, 1998).

Creating an emotional anchor may establish a useful emotional trigger for the dreamers. It gives the dreamers a way to specifically focus their minds on the desired emotions, as well as a technique through which they could concentrate and direct the dream toward their targeted behaviour goals. The emotional anchors were more than just automated triggers, as they also served the purpose of giving the dreamers a simple method they could focus on and use when in a dream. In any emotional activation, neurological and emotional stimulation will be released into the body chemically, physically, and in recent short-term memory (Nadler et al., 2010), thereby allowing

emotions to be potentially recorded in memory for easier access.

#### ***5.3.4.2 Challenge Triggers***

The second behavioural tool for use inside the dream-state which was designed is a *challenge trigger*. The goal of using the challenge trigger was to create an environment or a situation through which the dreamer would ordinarily feel triggered to react in a habitual manner, thereby provoking the participant into making a conscious behavioural shift or rehearsing the desired response to the trigger inside the dream. Further, the creation or appearance of the challenge trigger inside the dream could potentially assist the participant in the creation of the actual dream setting or environment. Therefore, the challenge trigger was simultaneously a stimulus and had the ability to influence the dream narrative.

It was identified inside the study that the participants consistently reacted to stimuli in habitual ways similar to their responses in waking life. The idea for the challenge trigger was then inspired by the methods and theories behind exposure therapy and fear extinction (Cellucci & Lawrence, 1978; Schindler, 1980). Briefly, in these methods, the individual is asked to confront the stimulus that triggers their undesired behaviour, such as fear or anxiety, within a safe environment (Cellucci & Lawrence, 1978; Schindler, 1980). Operating under the assumption that the challenge trigger would act as the stimulus to elicit the participants' target behaviour, the dreamer would be encouraged to use their particular challenge trigger as a means to create a safe scenario in which the dreamer could test their ability to react in a novel way within the safe confines of the dream or rehearse a new desired behavioural response that they had been practicing. The challenge trigger acted as a prompt to enact the desired behaviour goals in

the dreamers.

The selected challenge triggers were set up as a very specific situation, person, environment, or object that would normally produce an automatic and almost immediate reaction. For instance, if a participant typically yelled at his disobedient child but wanted to stay calm (yet firm) instead, his selected challenge trigger would be to visualize (inside his dream) his child with the disobedient expression that normally triggered the dreamer's anger. The goal of the dreamer would then be to attempt to respond in the way that he wished, rather than resorting to his habitual response of yelling at the child.

The third and final behavioural tool was the transition gateway, which is described below.

#### ***5.3.4.3 Transition Gateways***

As mentioned in the study, a *transition gateway* could also be a potentially powerful and useful tool to alter the dream environment. This tool should also be studied in-depth. Once the dreamer has chosen a transition gateway, they should be given the opportunity to visualize it as if it were real and rehearse going through the gateway. This helps provide accelerated practice and increases skill. The dreamer then becomes familiar with what it felt like to enter one side and emerge on the other side of the gateway. It's theorized that this may help develop feelings of transforming into the person embodying the desired behaviours as a function of transitioning through the gateway. This could be rehearsed before the dream by encouraging dreamers to explore what it felt like to go through the gateway as themselves and what it felt like to emerge on the other side with the ability to access the new traits and behaviours they wanted. Dreamers can then explore the gateway itself with imagery: how it felt, what it looked like in detail, and

other sensory information that might help them explore the gateway.

Any future studies designed to test the effectiveness of any of the three potential behavioural tools should make efforts to keep the dream manipulation to a minimum. Therefore, testing a single element at a time would fit with the results of other lucid dream studies (Erlacher & Schredl, 2008; LaBerge, 1989), which indicated that keeping the alterations to the dream environment to a minimum provided an increase in success. However, it is not uncommon for there to be several steps to the procedures involved; in fact, the ability for professional lucid dreamers to follow procedural instructions given by a researcher such as eye movements, squats, or counting has been successfully performed five out of 14 times (Erlacher & Schredl, 2008; LaBerge, 1989).

While the dreamers in this study did not report any difficulty remembering the procedure, many lucid dreamers do have difficulty remembering their waking and autobiographical memories and those memories that they can recall may be reduced or altered in some way (Barrett, 1992). But another of Barrett's (1994) studies showed that, the more proficient the dreamer, the better their ability to recall memories. Two approaches that may be helpful in developing or testing any tools intended to alter dream content: (a) keeping the things as simple as possible by using a single element to alter lucid dream narratives, and (b) giving participants a significant amount of time to practice and train on lucid dreaming.

Dreams do reflect waking life relationships and concerns; a method of directing the dream elements toward a specific behavioural scene and subsequent experience is needed. The difficulty lies with choosing which tools to use and how to manifest them. The best way to do this is to preserve and respect the natural features that allow the



dream narrative to shift and move in unexpected directions. Using simple tools that introduce only simple feelings, settings, or responses is likely to work better than attempting to manifest a complex scenario that controls every element of the dream.

#### ***5.3.4.4 Emotional priming***

In this study, the emotions manifested inside the dream state for the participants primarily reflected their waking life concerns and temperaments toward certain stimuli, which were in line with the long history of dream research supporting the continuity hypothesis (Domhoff, 1996; Hall & Van de Castle, 1966). Ways in which dreams can be intentionally influenced by waking life emotion and content should be studied in more depth in the future. If a systematic dream method is to someday be developed, then working with this natural process of incorporating waking life emotions and concerns might be one way to trigger or influence dreams. This would likely require at least three emotional areas to consider for developing methods to trigger these emotions which would include: triggering emotions inside the dream-state; triggering emotions related to the behaviour goals; and doing pre-sleep emotional exercises which may help warm up the emotional system before sleep. Each of these may be options for using and triggering emotions which would create a variety of tools for the intentional use of the element of emotion in the dream state.

The next section discusses recommendations to future studies with regard to using waking life emotion to influence dream emotions.

#### 5.3.4.5 Pre-Sleep Stimulus (Emotional Priming)

Future studies are needed to look into the potential tools to intentionally guide or trigger emotion in a dream. The idea of *emotional priming* is based on the results of the participants' work and existing theories of how waking life emotion can affect dream emotions. As stated, the participants of this study consistently manifested emotions based on existing relationships and waking life stimuli. This corresponded with multiple studies of how pre-sleep stimuli and emotions affect dream emotions and content (Domhoff, 1996; Hall & Van de Castle, 1966). The results also showed how emotions inside a dream narrative can shape the dream story and even the dreamer's behaviour inside the dream. Based on this understanding, a pre-sleep emotional stimulus could be designed to incorporate a kind of emotional priming exercise or one could use stimuli such as music to prime an emotion before sleep. This kind of emotional priming would be done during the waking state with the goal of generating a positive or heightened emotional response that could carry into or warm-up emotions for use in the dream state by creating an embodied emotional experience.

Dream studies have shown that emotions can be induced and possibly enhanced in their intensity or response by *combining* several stimulatory elements (Fredrickson & Levenson, 1998; Tomarken et al., 1990). The intention of an emotional priming exercise would be to create an embodied emotional experience which would evoke emotions by drawing up feelings in an unexpected and physically connected scenario, thereby providing: a novel experience, a sensorial connected experience, and a genuine emotional reaction.

Actively triggering emotion could potentially be accomplished through the design of emotional priming exercises, based on the understanding that waking life emotions often carry into the dream state (Gilchrist, Davidson, & Shakespeare-Finch, 2007). Priming an emotion could warm-up an individual's emotional response in the same way that warming up before exercise benefits athletes. Since primed emotions might be easier for the dreamer to access within the dream state during a certain window of time, the challenge is to find an effective way of warming up the emotional response systems of the dreamers without creating an overly intense emotional experience in the dream state. The rationale behind this is that intense emotions may create emotional burnout (Benedetti, 1999), which would have the opposite effect than what is needed for the dream experience to produce a profound dream.

To create an emotional priming exercise that would serve as an appropriate warm up, theatrical training exercises may be a suitable option and have been evaluated for their ability to trigger a consistent emotional response within the individuals participating in the exercises. These exercises have shown significant success in generating positive or high-emotion activated states for performers and have been used before a performance to warm up or during acting scenes (Benedetti, 1999).

In order to create the sensation of an embodied experience and to prime an emotional response, the dreamers could perform an adaptation of these performance exercises that have had consistent success in manifesting emotions. These exercises might be adapted from the theatrical training methods of Constantin Stanislavski, who was a theatrical performer, instructor, and researcher (Benedetti, 1999).

Stanislavski was interested in creating methods that produced 'realism' in the

actor. He would often experiment by ‘living the part’, and it was not unusual to find Stanislavski living as a theatrical character for a period of time (Benedetti, 1999). Stanislavski was part of the realism movement found both in literature and the performing arts, a movement which resulted in works that were both realistic for the artist and the audience (Baron & Engel, 2010). Stanislavski drew from many sources, including psychological realism and behavioural psychology (Benedetti, 2005). Stanislavski’s goal was to elicit genuine emotional responses and physical reactions from the actors. To do this, he used a variety of training and exercises involving exercises using the voice, the physical body, dramatic analysis, and emotional memory (Whyman, 2008). While Stanislavski believed that the training and exercises he had developed were a good foundation, he did not believe in being a slave to the tools that he developed, and he encouraged others to explore new and different ways of developing their talents (Benedetti, 1999).

Toward the end of his career, Stanislavski dropped his focus on emotional memory because of the side effects of causing hysteria and upset in actors after eliciting traumatic memories in his actors, but he continued to develop more physically-based methods to draw up emotions (Benedetti, 1999). Stanislavski believed that the ability to consistently produce desired emotions was firmly established and could be achieved not only by drawing up emotional memories, but also by inducing emotions through a physically-connected experience (Benedetti, 1999). Dream emotions could be generated through a variety of exercises adapted from Stanislavski’s famous emotional memory technique, which is a combination of affective response, emotional memory, and sensory memory.

The development of emotional priming exercises would be intended to work primarily as a pre-sleep warm-up for the emotions that would potentially carry into the dream state. According to Moreno (1977), 'the warming up process manifests itself in every expression of the living organism as it strives towards an act' (p. 56). The emotions generated by doing an exercise are likely to be amplified if a researcher is physically present with the dream research participants.

As an alternative, the emotions might be amplified if the participants were in front of an audience and being watched directly by others. Prior research has shown that emotional reactions tend to increase due to having to perform or speak in front of another person (Fredrickson, Mancuso, Branigan, & Tugade, 2000). Researchers have also found that emotions, whether positive or negative, tend to be amplified in the presence of an audience (Benedetti, 1999; Moreno, 1977). The success and results of a pre-sleep emotional priming method may also rest with factors that govern the impact of emotion, such as the time between the emotional event and the dream, the intensity of the emotion felt in the dream, the quality of sleep associated with the dream, and the personality or emotional reactivity of the dreamer (Schredl, 2003). At this time, researchers only have a vague notion of how these factors relate to emotional outcomes in the dream world (Schredl, 2003).

Also a method of measuring the success of the emotional priming technique should be used to see if the technique definitively activates emotions within the dream experience. Otherwise, there may be a lack of a clear connection between the emotional priming exercise and the emotion in the dream state. Another consideration is that if all participants received the same emotion-triggering exercises in waking states, each

participant is likely to have individual preferences for the emotional priming exercise themes, so having several different exercises available may be beneficial.

Further, any emotional priming tool design needs to consider that through triggering emotions which are attached to the images and memories of an existing person with whom each participant had a relational history, it is possible that these pre-existing emotional connections may interfere with the participant's ability to achieve the desired behavioural targets. As waking thoughts right before sleep that include emotional concerns are more likely to be incorporated into the dream state (De Koninck & Brunette, 1991), the activation of emotions related to existing relationships may have more of an effect on the dream content by incorporating the habitual feelings toward that individual or incorporating images of that individual within the dream. To resolve this, emotional priming exercise content should either remain separate from existing relationships or draw only from content that may be related to the behavioural change goals to provide focus on the desired emotion and behaviour goals within the experientials.

The emotions generated by the emotional priming exercises could be powerful if the research participants are able to act out the exercise as a physically-embodied experience. As Beck and Weishaar (1989) stated, 'change can only occur if the patient is engaged in the problematic situation and experiences affective arousal' (p. 29). The act of just doing an *imagined* theatrical exercise generally kept the participants' focus on the mental image of speaking in front of a crowd; as such, the experience associated with this exercise was most likely a cerebral one, even if the rest of the exercise used spoken words in front of an imaged audience (Beck & Weishaar, 1989).

Exercises that allow the participants more physical connection to their spaces,

their bodies, and the experience may elicit stronger emotions (Nadler et al., 2010). For example, if the participant was using an exercise where they were accepting an award that allows a participant to act out the entire physical experience associated with accepting an award (i.e., walking to and from the stage, being handed the award, after party, etc.), it may help to induce more of a physical connection to their bodies. Emotional priming methods focus on generating an emotional state by combining it with a physical component and therefore producing a connection between the emotion and the body. This could potentially prepare the participants for a lived experience that is powered by three key elements of dreams: emotion, narrative, and reality.

A second or alternative technique that could be used to emotionally prime the dreamers' emotions might be through the use of music. People value music for the emotions it can produce, and it is theorized that any emotions produced by music may be based on activation of the brain stem, episodic memory, and/or visual imagery (Juslin & Västfjäll, 2008). Music has been shown to consistently induce emotion in subjects (Koelsch, 2005) via film (Cohen, 2001) and in therapy (Bunt & Hoskyns, 2002). However, music is especially successful in eliciting emotion when there is a pairing of visual imagery with music (Toomey, 1996). In various situations, music-induced imagery also creates a deepened state of relaxation (McKinney et al., 1997). These emotional effects of music make it a suitable choice for an emotional priming exercise.

For the use of music as an emotional priming technique, a single piece of music should be selected by the dreamer to first determine its effectiveness. One piece of music could be chosen from a personal collection or by way of an exploration of available music sources. Dreamers might choose music they feel would best inspire them and/or

provide an atmosphere that aligns with their idea of a dreamlike experiential journey (Koelsch, 2005). The music selected should be intended to generate an uplifting, inspirational, or empowering emotion (Bunt & Hoskyns, 2002).

The participants should not pick any music with which they might have a pre-existing association or nostalgic connection (Bunt & Hoskyns, 2002). The music should be a clean slate that, while inspiring an emotion, is not already linked with a life event or personal emotional history (such as music that was played at one's wedding or during a memorable school event) (Toomey, 1996). To help avoid emotional attachment or distraction from the music, the musical choices should contain no lyrics; however, dreamers should be allowed to have music that contained vocals for harmony, melody, or mood enhancement (McKinney et al., 1997). The recommended genre would be either meditative, spiritual mood music or an empowering thematic kind of soundtrack, such as from a motion picture or theatre production, as these types of music are essentially created with the intent of eliciting specific emotions from the audience (Cohen, 2001; McKinney et al., 1997). The dreamers should be allowed to choose music based on their own personal preferences as a way of triggering emotional reactions (Cohen, 2001; McKinney et al., 1997). Participants should also be told that when selecting music, they should try to stay clear of video versions of the music, as this may cause images to influence the content of their dreams or elicit emotional connections to the music (Cohen, 2001).

Music is extremely subjective, so the dreamers should be allowed to make their own selections and might be selected based on the following characteristics: (a) steady, gentle, and inspirational, as if on a spiritual dream journey, (b) powerful, moving, and



triumphant, or (c) emotionally moving. Dreamers might listen to their musical selection two to three times without engaging in any other activity as a way of reinforcing the ‘clean slate’ association of the music. As they listen to the music these first few times, the dreamers should be encouraged to simply focus on the music and allow whatever images and feelings occurred to them to wash over them. The dreamers should then record their experiences as a way to help define the emotions the music triggered and where the emotional reactions occurred in their bodies.

The use of music as a potential for emotional priming was selected based on the neurological and emotional stimulation that manifest in the body as chemical and physical signals, and that remain in recent short-term memory, which could therefore potentially be carried over into the dream or dreamlike state.

Since positive emotions in waking life are more likely to produce positive dream emotions (Gilchrist et al., 2007), and given that combining different emotional triggers may increase the likelihood and intensity of emotional reactions (Nadler et al., 2010), emotional priming is a reasonable and relevant tool in dream stimulation. According to Bosnak (2007), emotions are ‘embodied states existing throughout the physical body’ (p.38), and the emotional tone experienced in waking sets the pace and content of the narrative in lucid dreaming or in a dream-mimicking state such as guided imagery.

Care should be taken not to stimulate the emotions of participants so intensely that it causes emotional burnout in the participant before the dream experience (Woodward, 2008). Emotions that are too intense, regardless of whether they are positive or negative, can cause emotional exhaustion (Woodward, 2008). As the goal in the current study was to help participants access the primed emotion more easily without

causing emotional fatigue, music may be the easiest method because of its consistent ability to trigger emotion. Evidence of this was found in an investigation conducted by Nadler et al. (2010), where they found that by exposing participants to music, they were able to successfully change the participants' emotions. In other studies, music was able to produce a slight increase in attention as well as an increased positive mood (Nadler et al., 2010). All of these factors make music a reasonable choice for an emotional priming technique.

### **5.3.5 Dream Replication and Mimicking**

The final recommendation is for future studies to find a way to mimic or replicate the dreaming systems in order to provide alternative ways to manifest and study profound lived experiences. This would allow researchers and therapists more control or direction of the experience as well as allowing the ability to do research studies in a more systematic way before attempting them in the dream space.

There are several potential existing techniques that could serve as a mimic or replication of dreaming. This would provide the ability to test and develop various tools or methods for future use in the dream state. Each of these alternative dream-mimic methods also contain the three dream elements of narrative, reality, and the potential for accessing emotion. One example is guided imagery, which allows the person who is in a waking imaginative state to engage in the three elements found in the profound dream state (i.e., emotion, narrative, and reality). Guided imagery has well-established methods of induction and has reportedly been successful in achieving various therapeutic and personal goals (Naparstek, 2004; Rossman, 2000). Guided imagery is essentially a state in which the body and mind are relaxed, and once relaxed, an induced imaginative

experience is created (Naparstek, 2004). The experience can be self-guided, guided by another person, or jointly guided by the participant and the secondary observer (Naparstek, 2004; Rossman, 2000). When in a state of relaxation, a kind of artificial reality can be generated for the subject (Leuner, 1969).

According to Leuner (1969), ‘the experience of a “quasi-reality” with concomitant feelings and associated affect occurs within a state of altered consciousness [in guided imagery]’ (p. 6). The guided imagery state has similarities to both daydreaming and nocturnal dreaming in its ability to evolve spontaneous episodic narratives. That said, it is important to note that guided imagery has the additional benefit of offering some degree of control over the direction and content of the narrative and imagery, a facet that is typically not found in REM sleep dreaming (Leuner, 1969). The trade-off for the gain of control in guided imagery is the loss of believability and level of realism that can be associated with the dream state. The benefit of dreaming is the intensity of the lived experience, which is reduced in a dream replication state.

Guided imagery has been used in various cultures for religious, experiential, and healing practices for thousands of years (Rossman, 2000). While guided imagery can take different forms, such as with the use of altered states through trance, natural substance inductions, sweat lodges, and other methods that altered the physical body or mental consciousness, the purpose of guided imagery is mainly to create visions and journeys, obtain answers to questions, or prompt prophecy (Rossman, 2000). These various uses of imagery became more targeted until they were adapted into the forms of guided imagery used in today’s personal development and therapeutic practices in Western culture.

In therapeutic fields, guided imagery is used for relaxation, stress reduction, and

the healing of physical and mental trauma (Naparstek, 2004). Guided imagery is also now being used within the medical field (Rossman, 2000). Guided imagery is increasingly being used for the treatment and easing of symptoms associated with cancer, as well as other chronic diseases and health issues. According to Rossman's discussion on the medical uses of guided imagery, it has been found that 'certain aspects of the imagery work may predict clinical outcomes, and they have developed similar scales and imagery in 60 interventions in the areas of chronic pain, diabetes, and spinal injuries, as well as cancer' (Rossman, 2000, p. 215). Guided imagery has also been used in the medical field as a way to increase immune function, reduce stress, and decrease pain in patients (Tusek, Cwynar, & Cosgrove, 1999).

For exploring ways to improve lucid dreaming and influencing dream characteristics, guided imagery is a reasonable waking alternative to a dream because in many ways, it is similar to sleep-based dreams. For instance, a visual image inside the mind, whether daydreaming or night dreaming, causes the visual cortex to activate in a similar pattern as one that is generated by actual external physical stimuli (Kastner, Pinsk, De Weerd, Desimone, & Ungerleider, 1999). Further, imagining a physical movement in a daydream state also activates the motor cortex (Taub et al., 2002). So imaging a physical activity creates a similar pattern in the mind and memory systems as actually performing the task in physical reality. Therefore, simply imagining a specific act or a scenario reinforces it in the brain. This is the reason why athletes, artists, and musicians can use visual imagery to hone their skills (Feltz & Landers, 1983; Intons-Paulson, 1993; Schmidt & Lee, 2005).

The dream space is more unpredictable and could cause physiological responses from emotions such as fear, embarrassment, or other high emotions, whereas the guided imagery space is likely to have an emotional containment for the respondent, where emotions are not translated into physical manifestations. So while feelings of sadness, happiness, and joy may have been experienced by a participant and may have been shown some physical manifestations in the way their responses were displayed (for example, through smiling, tears, or laughter), there may be a distinct absence of more intense emotions or more dramatic physiological reactions in the guided imagery state as compared to waking life experiences or dream experiences.

While guided imagery is a kind of lived experience, it is missing an ‘embodied’ physical connection that would give it a more powerful impact that may have produced a more profound lived experience. This is because guided imagery is more active than simply talking, but still less powerful than genuinely living through an experience since it lacks the physiological and sensory input from an embodied experience. Therefore, guided imagery, while powerful, may be somewhat more diluted experience than living everyday life or the dream state, and while it does become accessible as a lived experience to which the participants can refer, the experience is more in line with rehearsal than a complete experientially-based change. The ability to rehearse the behaviour in a mimic form of a lived experience may give confidence and a solid reference, so participants could still feel what it is like to overcome old behaviours and successfully accomplish desired behaviours.

However, guided imagery is only one of the potential methods with which the dream state could be mimicked. The guided imagery state is currently lacking the high

levels of emotion and the feeling of an embodied experience. So other methods such as gestalt and psychodrama, adapted to an experiential style, might allow for the missing high emotion to take place and for the participants to physically act out the narratives as if they were real. This could include acting out the scene in front of an audience, which could add the heightened emotions that come with performing.

There are many options among therapeutic and personal development methods from which a suitable or alternative performance style technique can be used for future study. Existing methods that contain the core elements of dreaming include guided imagery, hypnosis, psychodrama, gestalt, and various other methods. While the creation of a new or hybrid method may be a consideration for future studies, the beginning studies may be better served by choosing an existing and established performance or therapeutic method. Since dreams are more closely associated with an episodic lived experiences and its impact on a person's behaviour, information from studies on gestalt, experiential learning, and a number of other methods in which a person incorporates an emotionally-connected physical reality are relevant. Like guided imagery, gestalt therapy methods also have the design of creating these intentional experiences though more controlled environments (Polster & Polster, 1973).

One technique already being used for experiential behavioural change is gestalt therapy. Gestalt therapy incorporates experiential exercises with verbal techniques and acted-out situations, while also encouraging creative expression through drawing, writing, singing, dancing, and other activities (Andrews, Clark, & Zinter, 1988; Polster & Polster, 1973; Provost, 1999). These experiential techniques stay spontaneous, according to the needs of the clients (Polster & Polster, 1973), allowing expression, a lived

experience, and the opportunity for individuals to try out new or different behaviours (Provost, 1999).

In fact, Gestalt therapy already incorporates dream work in some of its methods (Andrews et al., 1988; Polster & Polster, 1973; Provost, 1999; ). In Gestalt dream work, the participant is encouraged to explore the dream and any characters present in the dream by acting out the dream, writing about the dream, and dialoguing with dream characters (Andrews et al., 1988). These methods work to create a physically embodied experience for the participant that, like lived experiences, can alter the structure and wiring of the brain (Karni et al., 1998; Kolb & Whishaw 1998). The guided imagery, gestalt, and psychodrama adaptations in the future should also be compared with one another to see which approach is likely to produce better results.

Future research would benefit from formulating a guided imagery waking life model wherein the body becomes physically engaged in the experience. This could be accomplished through adapted variations of techniques such as psychodrama, role-playing, empowering seminar experiences, personal development exercises, and similar activities that combine a physical experience, a narrative scene, and a life-altering premise. Each of the examples may be a possible alternative method that could someday be used to replicate the key elements of a dream for use with similar goals in a waking state by mimicking the emotional, narrative, and realistic characteristics of dreams. These alternative dream-mimicking and dream replication techniques may also be able to provide a reasonable level of control for developing advanced behaviour focus methods for incorporation into the lucid and non-lucid dream states.

## 5.4 Conclusion

This study was a small step toward the eventual goal of developing a systemic technique of intentionally using dreams for the purpose of creating behavioural changes in the waking world. However, at this stage, it is known that not all dream elements can be controlled, at least with the current scientific knowledge, and only a portion of a dream's contents or the direction of the narrative can be altered. What can be gleaned from dreams is that they are a realistic 'theatre of the mind' that allow people to create lived experiences that influence their waking behaviours, decision making, and even personalities. At present, the knowledge and methods with which one can design and induce a dream scenario with intention are still insufficient. However, dreaming is a powerful arena that may hold the potential to create lasting behavioural change.

In order to construct a method for influencing dreams, there must be an understanding of how dreams are created and influenced. The effects of dreams on waking memory and behaviours both in the dream and those dreams that follow into waking life are also important considerations. This study was an incremental step in the direction of that understanding. The intersecting lines of dream research are bringing this possibility closer with each new dream study. It is not a matter of if, it is a matter of when there will finally be a tipping point allowing dreamers the ability to use, activate, and influence complex dream scenarios on command. This could happen through a dreamer's own action, through outside influences from scientists, or a combination of many elements. Regardless of source, the research shows that dreams are definitely headed in that direction. Until then, dreams continue to be behaviourally, psychologically, and psychosocially beneficial.



The methods that would allow therapists and individuals to intentionally direct the dreamscape in a way to create a targeted intentional narrative experience are currently severely limited and produce inconsistent results. Right now, the few techniques that may work are limited to the small percentage of highly-trained lucid dreamers, and even amongst this select population, the techniques do not produce consistent results. For now, change through dreams remains unplanned and requires intense focus on or the incubation of a dream. However, profound change *is possible* through dreams, and each study and theory brings dream researchers closer to the goal of developing a systematic method of using dreams to intentionally create behavioural change.

In the future, more tests may find that the combination of elements used in this study (emotion, narrative, and reality) need to be altered or expanded. Certain elements may need to be removed, refined, or emphasized. The focus should not be to dogmatically use specific elements, but rather on finding the combination of dream elements that can be influenced and mimicked to create behavioural change. As scientific understanding of the reasons for dreaming and the functions of the mind are advanced, perhaps some, if not all of the assumptions upon which this study was based could be replaced with more updated information. The element that remains consistent, however, is that a person can be altered by his or her experiences, and that a dream holds within it the keys to an experience that is so lifelike that it can be a virtual reality training ground for behaviour modification.

Until the keys are discovered to unlock the dream-state for intentional behavioural change, lucid dreaming and dream mimicking methods are the most viable options. Through the use of methods that mimic the dream state and its elements of emotion,

narrative, and reality, there is the ability to provide both a lived experience and the ability to control the narrative direction or theme, as well as the experiential components to some degree. While not as powerful as the dream state, it has the potential to produce results. Developing and putting these techniques into a lived experience take the participants from a purely cerebral exercise and into a genuine life experience, providing them with a solid reference of what it is like to successfully accomplish the desired behaviour. Manifesting profound dreams, combined with changes in mind-set and continued support, can provide a road to behavioural change, adding to the toolbox of choices for individuals and therapists.

*Most people look backwards on dreams. They look at dreams that have already occurred and try to find their meaning, but dreams can take us into the future and help us become who we would like to be, change behaviours, and accomplish our deepest desires and greatest goals. It gives a stronger meaning to the saying anything is possible in our dreams.*

—C. Lynne, 2009, Secret Three of Dreams.

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## **Appendix A: Dream Study Informed Consent Forms**

### TITLE OF STUDY:

Dream Experiences as a Method of Influencing Behavioural Change

**PARTICIPANT SELECTION:** You have been invited to participate in this study based on your unique ability to remember dreams and/or create a lucid dreaming experience (as well as for meeting general wellbeing criteria in mental and physical health).

**INTENTION OF THE STUDY:** The intention of the study is to see if it is possible to intentionally use dreams to influence waking life behaviour by exploring the different dream elements such as narrative, reality, and emotions, either in the waking or dream states. The study will attempt to focus on positive emotions and experiences.

**VOLUNTARY PARTICIPATION:** Participation in this study is voluntary and uncompensated. You may leave the study at any time. If you choose to participate in the study and then withdraw, the information provided to that date will remain as part of the study data, but no further information will be used once you withdraw from the study. While we highly value and appreciate your participation, we want you to know you always have a choice.

**PROCEDURES:** Each participant may be asked to do all or a portion of the following:

- Answer pre-study questionnaire and interview;
- Record dream experiences and memories in dream journal or recorder;
- Participate in post-study interview;
- Possibly follow up with short questionnaires/interviews at various intervals.



There may be some modification to this list as the study progresses.

**DURATION:** The main part of the study will be conducted over a period of several evenings as the dreamer records or uses lucid or non-lucid dreaming. Once the study is complete, there will be short follow-up interviews to gain insight into the dreamers' experiences. The interview times will vary, since the participants are given as much time as they need to describe their dream experiences. However, as an estimate of the pre-study interviews is that they will generally take thirty minutes to an hour, and the dream experience interviews generally last one to two hours, the follow-up interview should be in the range of thirty to sixty minutes.

**RISKS:** While the attempt within the study is to stay with positive experiences, dreams can trigger a variety of positive and/or negative emotions, so there is a possibility of the activation of either positive or negative high-emotion states, memories, or nightmares.

Furthermore, within the study, you may be asked to discuss personal experiences and possibly behaviour that is uncomfortable for you. The participation is voluntary, so you may refuse to answer specific questions or take part in discussions that are not comfortable for you. You also may withdraw at any time as described previously.

**COMPENSATION:** There is no compensation or reimbursement for participation in this study.

**RECORDING:** The sessions with the participant will be recorded to allow I to focus on the interaction with the participant, rather than note taking, and provide accuracy of the study results. The recording will then be transcribed. *The recording will then be erased*

*and destroyed at the completion of the study.* You have a choice of allowing the full transcript to appear or only minimum relevant portions necessary to support the study results and findings.

CONFIDENTIALITY: No last names will be used in the formal study or publications.

You also have the option to have your first name changed for confidentiality.

Please check one:

\_\_\_\_\_ It is okay to use my first name.

\_\_\_\_\_ I would like my first named changed in the study.

I certify that I am in good health and I am not suffering from depression or mental illness. I have read and understood the information above and any supplementary materials and discussions. I voluntarily have chosen to participate in the study with the understanding the sessions will be recorded and the results may be published.

_____	_____	_____
Print Participant Name	Participant Signature	Date

_____	_____	_____
Print Researcher Name	Researcher Signature	Date

**Contact Information:** If at any time you have questions regarding the study, please feel free to contact \_\_\_\_\_, email: \_\_\_\_\_, telephone:

\_\_\_\_\_ (USA), University of South Africa: Doctoral Research Thesis Study in Psychology.

## **Appendix B: Pre-study Interview Questions**

### **First Question Set: Identifying and Clarifying Behaviour Choice**

1. What behaviour do you want to work on or change (in your life)?
2. Where and when does this behaviour typically occur?
3. Why are you interested in working on this particular behaviour?
4. What would the benefit be to changing this behaviour?
5. Is there something that triggers this behaviour?
6. Can you describe a situation in your life where this behaviour occurs?
7. What emotions are associated with the behaviour?
8. Have you tried to change this behaviour in the past? If so, how?
9. Have you encountered or do you anticipate any difficulties with changing this behaviour? If so, what are they?

### **Second Question Set: Participants' Personal Definitions of Behavioural Change**

1. What change would you like to see in this behaviour?
2. How do you feel about your ability to change this behaviour?
3. What would make you confident in your ability to change this behaviour?
4. What would the new behaviour look like or feel like in your life?
5. How would you know if this behaviour has been changed?
6. Can you describe a situation where you imagine what it would be like to have changed?
7. When you imagine yourself in this situation, what do you feel, and where do you feel it?
8. Is there anything else you would like to say or want me to know about yourself or this behaviour?

## **Appendix C: Post-method Interview Questions**

### **Post-study Interview Questions**

1. Describe your experience.
2. Did the experience relate to your behavioural change goal?
3. What do you feel was the most powerful aspect of your experience?
4. What would you change to make your experience more powerful?
5. Do you believe the experience has or has not impacted your life, behaviour, or thinking? If so, in what ways?
6. What do you believed has changed or stayed the same?
7. What else would you like to say about your experience?
8. On a scale of one to ten, how would you rate how the dream/guided imagery impacted your waking life or behaviour?

## **Appendix D: Study Solicitation Notice**

### Dreaming Volunteers Needed

Research Description: The study will explore how dreams can be intentionally activated to create positive profound experiences that may help encourage habitual behavioural change. Volunteers are needed to describe a behaviours or behaviours which they are interested in currently changing in their lives, maintain a dream journal for seven to ten days and conduct a follow-up interview on their experiences.

#### **LUCID DREAMERS NEEDED:**

To participate in the study you must

- Remember and be able to record dreams consistently (4+ nights a week)
- Be at least 18 years of age
- Not be on any prescription or recreational drugs, alcohol, or medications
- Be free from any major medical or depressive conditions
- Be able to lucid dream in regular manner (3+ nights week)

Participants may be asked to do some of the following:

- Pre-study discussion and interview regarding possible behaviours the participant is interested in changing
- Recording lucid and non-lucid dreams in nights after the interview
- Post-dream follow-up discussion and interview

**If you are interested in participating in the study please contact:**

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Thesis Research Study for University of South Africa

## **Appendix E: Participant Dream Journals**

The journals from the participants remain unedited for spelling and grammar. It is common that errors may occur in dream journals due to rushed and tired writing from just waking so the journals are copied exactly as submitted by the participants with the exception of unifying the font and spacing. The participants submitted the journals already typed and as shown. No journals were submitted handwritten.

### **Participant: Paul**

Sleep around 2130, woke up at 0045

1 Some vague impressions of picking stuff up off the ground and collecting items.

A feeling of acceptance and that's things were alright. No recall to attach this to anything but mixed in with swirls of wispy energy floating around on the edge of my awareness.

Sleep and woke up at 0410 – got up and spent time on trades.

Back to bed and going into process for WILD – got to calmness and went to sleep

2 On road walking and car goes past. Man leans out window and indicates for me to wait for him to come back. Car turns around and he comes back and we talk. It is an old friend that I rarely see as he is a very busy businessman in another town. We talk for a while; his ex-wife is in the car with him. I look at the car and it has a logo I don't know. I look again and the car is covered in grass and pine cones and blends into the forest floor. I am

now in a room and he comes in and gives me a hat, his new cell number and we arrange to meet up again.

3 In the forest with a shovel, I use it like a pogo stick and bounce up and down to great heights and land up trees and then go back to the ground again. Its good fun, I see my daughter so put her on my shoulders and bounce with her. She is scared but trusting and soon has a big smile on her face.

4 I am in a workshop looking for my car that is getting repaired; I have a panel in my hand. I see a man and he takes me to a parcel that is for the car. It's been ordered 18 months back and now just arrived. There is a pair of child's shoes taped to the package as well. I go looking for my car, nearly fall into a pit, manage to crawl away from the hole in the ground, the floor is slippery but I am ok.

5 There in a door and I go into it and now in a room. I go to leave and I am in a house in the back of the workshop, it is cool but not my place and I feel I should not be there so find the door and leave. On the way out there is a garden bed with some small flowers just poking their head out of the ground?

6 I am in a room and there is a local contractor there that is a friend from years ago. We talk and I am happy as he has not talked to me since I separated from my partner many years ago.

7 I am watching a person, a female try to enter a room and the room is a projection on a massive screen sized mirror, it folds away and another image is there. She approaches this and it folds away as well. A man walks out of this flat screen into the scene and past her.

End of night, I snap away at 0620. This is a habit.

No Lucids, Vivids dreams as real and full of detail as daily life.

7 scenes or dreams recalled. This is normal and not a big night as I would be confident that I missed several in the first part of the night.

Dream 2—08/17/2012

Vague recollections of dreams but not good enough to give detail.

About an hour till entering dream. Came out of dream at 0520. Dream time fully lucid about 70 minutes

Trying for WILD and a little restless as always after looking at market screens in the early hours.



1 Relaxing and feelings of body going to sleep coming on – In kitchen using the waste disposal and the lights went out, dam – fuse blown. Think the lights and the disposal are on different circuits – aha, I must be dreaming. I wake up and start to relax again.

2 Instantly asleep and then in airport lounge talking to Marian on cell phone. Phone feels funny and I look and it is an old type of phone. I think I must be dreaming and look around the lounge and it is so real I am not sure. I put my hand through the wooden support of the chair and yes I am dreaming. I decide to go and close my dream eyes (I have learnt to close them in the first stages of a dream as it greatly deepens the state) I am being rushed backwards at a great speed and for a long time. I now have my eyes open and am in the 3D darkness or void and just let this rushing backwards happen until I feel myself slowing down.

3 I am in an old house and it is cluttered, I know that this is the place where my children are with my ex-partner and so I look for them and they are in their rooms. I find them and give them a kiss and a cuddle and walk out and to the kitchen. I give my ex a cuddle and leave the house (it is very common for me to see my children in both lucid and vivid dreams). I fly by willing myself away with no destination in mind and let the dream create the scene.

4 I am in a big city, European by the look of it. There are big stone buildings and the streets are paved with a central pond as well. I walk into a shop and find a blank wall. I ask and will for a doorway and this is to lead me into a trading room. A door appears on the

wall and I struggle to get it open. It opens but is not a room but like a folding window shutter and in the space behind there are works of art. I look at these and each time I move my eyes a little a new work appears. There are as many as I wish to see and they are incredible water colour works. (I would love to paint these as they were truly unique and a little abstract)

5 Walking in market with stalls everywhere, now indoor markets and looking for blank spot. Found one after a while and after looking around and talking to people (3 females were lying down and one was annoyed as her head was not connected to her body, she was under a sheet and I put it back on for her. They were all happy at this – It was a dream!) I moved on and found a space inside a hallway. I asked and willed a door in the wall, opened it and walked into a room. Again no screens after I asked for them but more incredible art. The works were unlimited and just kept appearing each time I had my fill of looking at one. Again abstract watercolours that gave a sense and feeling of pleasure in looking at them. Also wonder at the artist's ability to create them.

6 Walking along a road, on bridge, look at water in river and it is frozen and looks like green glass. I step onto the ice and it is hard, beautiful and very cold and again asks and will for a door several times. Nothing happens. I put my arm out and an iron bar appears in my hand. I scratch and chip the outline of double doors in the ice, it is hard and this takes a while. I put two handles in the middle. I chip at the handle area until it softens a little and then jump up and land hard on the handles. I get through and sink into a cold green slurry of ice water. No panic as I have breathed in water, solid rock and in space

many times so I enjoy the sinking feeling and drift down for a long way feeling the cold and soaking in the energy of the ice. I am now in a concrete room, my trading room and ask for screens. Instead I get tables with drawers like in a museum and so start to open them. Each one is filled with inventions made of steel, jade, stone and other materials that I have never seen. I pick some up and feel them, play with them and wonder what they are for. There are hundreds of these objects in each drawer.

Dream fades—wake up

Interesting that I took my goals to the dream and had 3 goes at the door and room. Each time it got a little deeper or closer to the goal. The art work still shocks and impresses me as it was a clear as being in a gallery and each work lasted as long as I wanted to look at it and all created by my mind (I assume)

The last section (all dreams were linear in time) was not willed the green ice was just there so I had got past 2 attempts at trying and then it appeared and I had to get past the barrier of the solid ice. I had to make an entrance and then in an act of faith force my way in.

This produced the sinking into the ice, the wonder of looking around and the absorbing of the energy contained in the ice.

Summary

Don't force the trading

I have the skills I just need to relax and trust my intuition

The opportunities will appear and when they do take them

Trading screens and charts are works of art for me – I say they tell me a story and they talk to me

Trust the feelings, let them become solid and feel them and play with the feelings

Dream 3—08/18/2012

Almost no recall last night. Small fragments.

Needing to make some money

Talking to an old friend and ex crew of mine from my younger days when I was fishing

Thought that I should go back to doing what I know – fishing as it was simple and we were good at it

We decided to go back to sea on our old fishing boat

Loose bits of memory that came later this morning well after waking.

The theme is again of just doing what I know works and getting on with the job – accepting what needs to be done.

The next few days should see recall back to normal levels

Dream 4—08/19/2012

Evening to early hours

1 In a shop and after something that is not in the shop so they show me a catalogue of goods. We have trouble finding the pages and then we get a newer catalogue and when we get to the section I want a good chunk of pages are missing. They (one older woman and one younger woman) shot me a rack full of colourful plywood key holders. They pick one up and it is nice and my kids would love it. It is four dollars and they will let me have it for only 2 dollars. I tell them I came in for some specific goods and yes it is lovely and a good price but no I don't want it. Could they contact me when what I want arrives?

2 Driving a car (can't recall any details)

Up at 4am for about 20 minutes. Just long enough to wake fully

4 Trying to fix a small power machine that looked like a chainsaw combined with a weed cutter. It was hard to get it going and at one point a fuel line burst and I caught the spilled fuel in a container and then started to pull the machine to bits.

5 I drove into a hotel car park. It was an angle park just outside reception and easy to get into. I entered the lobby and went to one of the receptionists to get my room. She looked and after I spelled my name she found my room. There were some notes about what I liked and she said I had a nice room and that it was all ready for me if I wanted to go

there now. I looked at her, smiled and said thanks. At that time I noticed that she had a deformed right arm. It only went to just before her elbow.

6 I am riding my bike on the footpath and I get to some roadworks. There is a detour sign and the man says that I can sneak past and go round the corner onto the detour. I start to go past and the digger with a mean looking trenching tool is very close to me but I proceed to the turn. Around the corner there are rocks on the road and a truck dumping more. They are very close to me and I need to swerve to miss being crushed by the rocks. I keep going and then go round another corner and there is a building with an overhanging veranda. I duck under this and a truck pulls up, it blocks the path I have just taken and gets closer to me. I am now in a very small space and not too happy about it. In front of me the truck cab gets right against the wall and my friend is there. He is now crushed and bleeding badly. I pick up a rock and start bashing against the truck sides and it moves a way.

Next I find my friend in the ambulance and he is bleeding and in great pain. He shows me his hand and there are a few fingers missing. I talk to the men in charge and look around

Wake up

There are vivid dreams, as real as life but NOT lucid. The dreams are just full of signs that to allow me to get lucid. The road works with the digger close and threatening, next the trucks dumping rock, then my friend getting crushed. To me this is a progression from a very aggressive SC that most likely thinks I am thick as I don't get it.

The first dream in the shop may relate to only accepting what I want and what I know is correct. A discount on something I don't want is not a discount it is a small measured loss. This may relate to the trading process.

#### Dream 5—08/20/2012

1 In a room observing but not noticed by these people, they were all angry and annoyed at the government. Their faces were made of sections like bandages in strips and grey or green and hard looking. All had very strong features and each had a complaint. They started coming in one at a time and speaking their mind. Their faces got more detailed and the features more pronounced as they spoke and their teeth got less and less as they were speaking. They were forceful in what they were saying but seemed strong and happy as well.

2 I was walking down a street in a village by the sea. I see some activity and it looked odd. Next I was in a building and part of a team, we went into a barn and up 3 levels on old ladders and I had to get through small hatchways and close these behind me as I went up them. It was hard to get them closed. At the top was an old bed and I rested for a while. When I woke up I made my way down. The ladders were missing and so I dropped each time but landed safely. At the bottom I went out the door and the sea was just lapping at the doors. A few people were gathered there and a next washed up in front of

me. It was full of fish and we pulled some out, I caught a good size one and we let the rest of them go as we had enough.

3 I am in a class room and studying by myself, some sort of test that did not have questions but required answers. I was looking at pictures and needed to say what I was thinking. I did this and then entered the other class room and talked to some of the people there. We were walking down the road and then a bar appeared in front of us, some of the people lined up for a drink and they were not served until they had safety lines attached to them. I got given a drink and it was in a big glass and very heavy. I started to drink it and it tasted like malt and had a thick skin on it that I was able to eat like a biscuit.

4 I am on a machine that is washing gravel, I see water going over the dam at the top and running down the sluice box. It is a wooden construction and I am not happy with the rails as they are not nailed correctly so I check some other parts of the structure and they are mostly ok. The water level drops and the platform starts to rub on the sluice box that is now under the surface. The water dries up and there is a big drop to the creek bottom and we can see how it was all constructed.

5 I see a girl I knew from years back, we talk (lost recall on this as it was the first dream of the night)

An odd mix of random dreams and all vivid. There were a few more that I have very vague fragments of feelings of but have not surfaced yet. If they do I will add later.



Dream 6—08/21/2012

1 Reading paper and see image, I make a racist comment and a man near me hears this and looks offended. I explain to him that I make a game of trying to see another point of view as quickly as I can and expressing that without thought ruining the process.

He understands this and we talk for a while. He asks me if I know of any artists from the islands and we find a person that we both know.

Note – I have been reading a book on intuition and this may be related to connecting with first thoughts that emerge from the SC.

2 I am at the back of a group of people and have a canvas on a board. It is dark blue and there is an image of an abstract sun that is nearly completed. The sun is made of a dark green and white flecked Jade. I am happily selecting pieces of Jade and putting them into place.

3 In a truck yard and we are wanting to unload, the truck is facing the wrong way and need to be turned around. The driver is going to do this and starts to drive out of the yard. I am in the back of the truck and it has 3 dog kennels inside of it. The exit to the road is a bit tight and the driver is replaced by a female driver, she turns the truck around and starts back into the yard. It is steep and so I get out as I don't feel safe. A man is thrown out of

the front and hits his back on a fence. He is bent like a staple but is ok. He looks amused by my concern.

4 At garage wanting fuel, the pump is slow. I talk to an attendant and he shows me the fast pump out on the road by the hedge. I will use this one next time.

5 I am in a room with a man and trying to do a test. He keeps saying I am wrong but giving no clues. He gets annoyed and says 'just look at the patterns' He opens a book and there is a lot of txt in it and a blank space for an image. He says just put a pattern in the space that needs an image. He says put a pattern to the process. I put an image in the space, It is correct, he is happy

I missed most of the early evening dreams again, tired and had a good sound sleep for a few hours so no big deal.

**Participant: Thomas**

Dream Journal:

August 15th: I'm on a roof with some girl explaining to her why she should fly the helicopter she owned.

August 17th: My mother kicked me out of the house or something because we were arguing, so I went to stay at a new apartment. While en route to the new place, some guys I knew saw me and told me not to walk around there anymore... I said something like 'that doesn't pertain to me' and one of the guys start to shoot a gun at me. I get scared and realize that I don't want to die as much as I thought I did and run away... When I get into my house, I want to play games but there is some girl there. She's cleaning the house or something and asked me where something was I told her to check the bathroom.

August 19th: There was something about me being watched through a computer. Someone was monitoring some capability I had but not only me, there are four people in the group. Also the lady that I'm doing the study for tells me there I much more to the study... She introduces a new equation for me to incorporate into my dreams. The dream changes and I'm at my best friend's house and his wife is there and I'm explaining to them something about dreams... I offer them food but they say they already ate...

August 21st 6AM: I'm on some deserted landscape... desert. I'm laying[SIC] on the ground soaking up some sun when out of the crevice of some rock a 'cottontail' snake appears and starts to slither towards me. I try to stay calm and not move thinking that will make i go away but the snake bites me anyway. It bites me several times... I jumped up and killed the snake and called for my mother to take me to the hospital... She was procrastinating stopping at a supermarket. She tried to convince me that the snake bit wasn't all that serious... I told her that I'll probably die and so did some guy that worked

at the supermarket... We walk outside and my mother is talking to some lady that lives in our building and I have to pull her away to leave...

August 23rd: I'm at some party with some girl. We're making out on a couch. She's dark skinned and very pretty. It's going pretty good but then I keep stopping for some reason. There's a girl standing outside watching us... There are other people here and it seems to be a party... No one else is paying attention to us but this other girl. The girl I'm with tells me that the other girl outside likes me. I tell the girl that is outside watching that I'll be there in a minute.

August 25th: Lucid dream I'm driving a car somewhere under a bridge when I realize I'm dreaming... I was just on my bed. What woke me up was that I was speeding past cop cars. I turned near a tunnel but I was going to[SIC] fast to make it and I was about to hit a brick wall when I put my hand out and realized I was dreaming everything stopped. I was pulled into the air but I 'willed' the dream to continue. I was being pulled through the night sky... I saw many continents on this planet... This wasn't earth. It was a much bigger planet with more water... I was being pulled to a location then I woke up.

August 26<sup>th</sup>: I'm at some club or something and some girl keeps trying to sell me something, seems like a big bag of cookies. She appears to be drunk laying on the floor I feel like she has been in many of my dreams. I have a, a, slight recollection of her but, I don't remember her and in the dream, feels that she's been in a lot of my dreams but I

don't remember her at all and we are in some house now and she said she wants to ask me something but doesn't and when I start to walk away she keeps saying wait.

Lucid dream prior to the beginning of the study August 13th:

I don't know what I'm doing, I'm in a desert with brilliant gold sand and the sky is the bluest I've ever seen. I wake up in the dream and rub my hands together, spin in circles and demand clarity out loud. When I asked for clarity the dream warped as if it were being molded into something different. Next thing I know, I'm in a penthouse lofty apartment building restaurant. I hear voices but don't see any people... The place looks pretty lavish. Chandeliers and such. I'm standing outside on a private balcony and start to walk inside and realize I have glasses on and a suit. I remember the upcoming dream study and I try to find a mirror to change the dream. I see the mirror but when I look into it I have this old work uniform on and I appear younger. When I try to walk through the mirror I was pulled away from it and woken up.