Psychedelic Revival:
A Mixed-Methods Analysis of Recreational Magic Mushroom (Psilocybin) Use for Transformational, Micro-dosing and Leisure Purposes

by

Lindsay Victoria Shaw
Bachelor of Arts (Hons.), University of Victoria, 2015

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in the Department of Social Dimensions of Health

Supervisory Committee

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Dr. Eric Abella Roth, Department of Anthropology
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Abstract

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Background

Following years of inactivity, psychedelic research has rapidly expanded within clinical and therapeutic fields. In particular, magic mushrooms (*psilocybin*), a plant-based psychedelic, have been researched for the treatment of complex mental health and substance dependence conditions, and yielded promising results. Largely due to the historical baggage of the psychedelic movement in the 1950s-1970s, and the stigma of recreational substance use, recreational magic mushroom users have been ignored within the current psychedelic revival. This thesis addressed this gap, examining the magic mushroom recreational substance use patterns of emerging adults in Victoria, British Columbia.

Theory and Methods

Using the *normalization thesis* as the guiding theoretical framework, this thesis used a sequential-exploratory mixed methods design. Statistical analysis of quantitative cross-sectional interviews (*n*=558) conducted between 2008 -2016 generated rates of use, availability, and self-rated knowledge rates of magic mushrooms users. Qualitative cross-sectional semi-structured interviews (*n*=20) analyzed through thematic analysis determined substance use behaviors with reference to the current social and cultural context. Participants were recreational magic mushroom users, aged 19- 24.

Results

Quantitative results indicated high overall rates of lifetime and past year magic mushroom use, with the lowest reported prevalence rate of lifetime use occurring in 2014 (86%), suggesting high rates of use within the recreational substance using population. There were no statistically significant relationships between year and lifetime or past year rates magic mushroom use. Gender was statistically significantly associated with magic mushroom use, with males being more likely to use magic mushrooms. Qualitative results indicated dynamic and strategically planned magic mushroom experiences. Themes developed include: shifting understandings, optimizing experience, purpose driven use; and post-trip impact. Participants reported using for transformational, micro-dosing, and leisure purposes.

Discussion

Results suggested that magic mushroom use is in the process of *differentiated normalization* and *assimilative normalization*, influenced by developmental, social and cultural forces. Recreational users report substance use practices that have not been widely reported with the substance use literature, including using small doses of magic mushrooms (i.e. micro-dosing) for self-enhancement and therapeutic purposes. Results can be applied to the current psychedelic revival in three ways: (1) directing future clinical research directions and; (2) provide lived and experience and relevancy to clinical research, which will improve applicability and; (3) re-conceptualizing the identity of a recreational substance user, which has important implications regarding stigmatization.

"One good way to understand a complex system is to disturb it and then see what happens."

— Michael Pollan

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List of Abbreviations

ADHD: Attention Deficit/Hyperactivity Disorder

AOD: Alcohol and Other Drugs

BC: British Columbia

CISUR: Canadian Institute of Substance Use Research

CED: Cognitive Enhancement Drug

CRDUS: Canadian Recreational Drug Use Survey

CTADS: Canadian Tobacco Alcohol and Drugs

DARE: Drug Abuse Resistance Education

DF: Degrees of Freedom

DMT: N,N-dimethyltryptamine

gm: gram

HREB: Human Research Ethics Board

H-HT: 5-hydroxy-triptamine

fMRI: Functional magnetic resonance imaging

OCD: Obsessive Compulsive Disorder

LSD: Lysergic Acid Diethylamide

LTU: Lifetime users

MAPS: Multidisciplinary Association for Psychedelic Studies

MDMA: 3,4-methylenedioxy-methamphetamine acid

NMDA: N-Methyl-D-aspartic acid

NU: Never used

PTSD: Post Traumatic Distress Disorder

PYU: Past year users

RA: Research Assistant

SD: Standard Deviation

ug: Microgram

UVic: University of Victoria

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Dedication

For Pam and Jim.

Chapter 1: Introduction

Research Context: Paradigm Shift

Psychedelic substances are undergoing a revival within medical and therapeutic research (Nichols, Johnson & Nichols, 2017). Following years of research inactivity due to federal bans, researchers are now attempting to understand and harness the power of psychedelics to apply to a wide variety of health conditions (Carhart-Harris et al., 2017a, 2018b; Garcia-Romeu, Johnson, & Griffiths, 2014; Griffiths et al., 2016; C. Morgan et al., 2017; M.W. Johnson, Garcia-Romeu, Cosimano, & Griffiths, 2014; Ross et al., 2016; Tupper, Wood, Yensen, & Johnson, 2015). This surge in research is largely focused within three areas: (1) neurology and pharmacology (Carhart-Harris et al., 2012a, 2012b, 2017b; Muthukumaraswamy et al., 2013; Petri et al., 2014); (2) therapeutic applications, through clinical and descriptive research (Carhart-Harris & Goodwin 2017a; Curran, Nutt, & de Wit, 2018; Daniel and Haberman, 2017; Lafrance et al., 2017; Roseman, Leech, Feilding, Nutt, & Carhart-Harris, 2014) and; (3) population-based studies (Hendricks, Clark, Johnson, Fontaine, & Cropsey, 2014; Hendricks, Thorne, Clark, Coombs, & Johnson, 2015a; Hendricks, Johnson, & Griffiths, 2015b; Hendricks et al., 2018; Johansen & Krebs, 2015; Krebs & Johansen, 2013a, 2013b). These three areas work within close parameters and build upon each other to develop psychedelic-based therapies in response to complex mental health and substance dependence conditions.

The clinical-therapeutic use of psychedelics has been positively associated with reducing symptoms of treatment-resistant depression (Carhart-Harris et al., 2016, 2017b, 2018a; 2018; Roseman et al., 2014; Sanches et al., 2016; Santos, Sanches, Osório, &

Hallak, 2018); positive outcomes in the treatment of drug, tobacco and alcohol addictions (Bogenschutz & Pommy, 2012; Bogenschutz et al., 2016; Ezquerra-Romano, Lawn, Krupitsky, & Morgan, 2018; M.W. Johnson et al., 2014) decreased symptoms of Obsessive Compulsive Disorder (OCD; Delgado & Moreno, 1998; Wilcox, 2014) and; Post Traumatic Stress Disorder (PTSD; Mithoefer et al., 2011, 2013; Ochen, Traber, Widmer & Schnyder, 2013). Population-based studies have associated psychedelic use with reduced lifetime criminal behavior (Hendricks et al., 2018), pro-environmental behavior (Forstmann & Sagioglou, 2017), and reduced stress and suicidality (Hendricks et al., 2015a, 2015b). Currently, larger-scale clinical research trials are examining the relationship between psychedelics and demoralization in people with long-term AIDS (University of California) and cocaine dependence (UAB Outpatient Clinical Research Unit Birmingham, Alabama).

Researchers have referred to this surge in psychedelic research as a "*new paradigm*" (Nichols et al., 2017, p. 290; Richards, 2017, p.323; Sherwood & Prisinzano, 2018, p.1); a *"psychedelic renaissance"* (Bøhling, 2017, p. 133; Sessa, 2018, p. 251) and a *"cultural zeitgeist"* (Carhart-Harris et al., 2018b, p. 2105). These declarations have become common within psychedelic research, leading one research team to lament that "…statements like this are beginning to feel platitudinal…" (Carhart-Harris et al., 2018c, p. 1). Platitudes aside, this renewed interest in psychedelics has revitalized a field of research that has not been popularly examined since the late 1960s (Rucker, Iliff, & Nutt, 2017). This thesis results from this renewed interest and ideally contributes to the psychedelic revival: *Chapter One* discusses the terminology used within the psychedelic research field and provides an overview of the history of psychedelic research,

embedding major events within the dominant social and cultural context. I then present the research problem and research objective and conclude this chapter with an outline of this thesis.

Terminology

Terminology within the psychedelic field is complex and can be ill-defined: terms are not used uniformly or have been created somewhat artificially; there is a large citizen-science culture dedicated to psychedelics which impacts research terminology; and specific terms carry politically and culturally charged histories. In this section I briefly discuss different terms used within this field of research, and explain the terminology used within this thesis.

Psychedelic Substances

In this thesis I use term *psychedelic* to describe a heterogeneous set of psychoactive substances (Bogenschutz & Johnson, 2016). *Hallucinogens* can be used synonymously with *psychedelics*, but the term *hallucinogen* generally refers to a broader category of substances which includes psychedelics. Hallucinogens cause changes in thought, perception, mood, and do not cause memory impairment, physical dependence, or excessive stimulation (Sellers, Romach, & Leiderman, 2017). As a class, hallucinogens have been referred to as a "catchall category," containing a wide range of substances unsystematically grouped together (Nichols, 2004, p.132). For example, hallucinogens include: LSD (*Lysergic Acid Diethylamide*), psilocybin (magic mushrooms), mescaline (from cacti; including peyote and San Pedro), DMT (*N,N-dimethyltryptamine*; and its variants, including ayahuasca), peyote, MDMA (*3,4-methylenedioxy-methamphetamine),* ketamine and cannabis (marijuana). These

substances have some similarities in effect, but have widely divergent sources, diverse chemical structures, mechanisms of action and behavioral pharmacology (Sellers et al., 2017).

Members of the scientific community are moving away from the term *hallucinogen* due to the erroneous emphasis on hallucination effects that the term implies, as very few users of hallucinogens ever experience hallucinations (Carhart-Harris & Goodwin, 2017a; Rucker et al., 2017). Instead, the term *psychedelics* is becoming more widely used, relating to its definition as "mind manifesting" (Osmond, 1957). *Psychedelic* generally refers to the *classic hallucinogens*, including the above noted LSD, psilocybin, mescaline, peyote, DMT and ayahuasca (Freidman, 2006; Haden, Emerson & Tupper, 2016). Individual psychedelics do have some common similarities in that they alter perception and consciousness by targeting the central nervous system and synaptic transmission within the brain, but again, differ in structure and neurological uptake (Bogenschutz & Johnson, 2016; Sellers et al., 2017). I use this term, *psychedelics*, as it is the most legitimized and dominant term at the time of writing.

A minority of research uses the term *entheogen*, meaning "bring forth the divine within." Gordon Wasson, the creator of the term *entheogen* wrote that there was a need for a descriptor "unvulgarized by hippy use" (1980, p.xv), as *psychedelics* is closely associated with the 1960's counter-culture, anti-establishment movement (Tupper, 2003; *see "Historical Perspective: Psychedelic Movements" for further discussion*). Generally, the term *entheogen* refers the same substances as psychedelics, but the term emphasizes the spiritual, sacred and divine role that these substances occupy for people (Elcock, 2013).

Recreational Use Terms

Several recreational psychedelic substance use terms are used within this thesis and warrant a brief discussion. First, *recreational use* refers to "the occasional use of certain substances in certain settings and in a controlled way" and is tied to the concept of sensible use (Parker, 2005, p. 162; Parker, Williams, & Aldridge, 2002). *Recreational use* is rarely defined within the research setting (e.g., Bøhling, 2017; Duff, 2003, 2005) but it is associated with a lack of physical or physiological dependence. What is considered recreational is contextual and can shift depending on the political and social forces.[1] For the purpose of this thesis, the definition of *recreational use* is kept purposely broad, and refers only to non-addictive and non-clinical substance use.

As will be later discussed (*Chapter 2: Literature Review, Effects*), the experience of psychedelics is partially dependent on the dosage. I use the term *trip dose* to refers to quantity of psychedelics consumed to achieve a *trip*, which is the classic psychedelic experience where people generally experience sensory and phenomenological effects caused by the psychedelic substance.

I also use the terms *set* and *setting* when discussing the context of psychedelic use. *Set* refers to the psychedelic user's pre-state, that is, their attitudes, previous experiences, anxiety, or assumptions. The *setting* is the environment and social context the psychedelic is experienced within (Hartogsohn, 2016; Leary, 1963). These are popular terms within the psychedelic recreational community and are being increasingly

[1] There is a field of research which examines the multiple ontologies, or states of being, of substances. See: (Duff, 2012a, 2016; Letcher, 2007; Tupper, 2012) for an expansive discussion on changing and multiple ontological identities of substances.

used within clinical research literature (e.g., Carbonaro et al., 2016; Carhart-Harris et al., 2018c).

Lastly, I use the terms *magic mushroom* and *psilocybin* to refer to different concepts. *Magic mushrooms* are psychedelic mushrooms. *Psilocybin* is the active compound in magic mushrooms. I use *magic mushrooms* when I am referring to the consumption of the mushroom, or when describing the social and cultural meanings attached to psychedelic substance use. *Psilocybin* is used when I am referring strictly to the active compound, generally when discussing the clinical and therapeutic applications of psychedelic research.

Historical Perspective: Psychedelic Movements

This upsurge in psychedelic research is described as the *third wave* of psychedelics (Austin, Tudorie & Stone, 2017). The *first wave* refers to the ceremonial, medicinal and recreational use of psychedelics by peoples in South and Central America for millennia (Guzmán, 2009; Kyzar, Nichols, Nichols, Gainetdinov, & Kalueff, 2017; Nichols, 2004). The *second wave* is attributed to the 1950s – 1970s, when scientific interest in psychedelics began, following Albert Hofmann's synthesis of LSD in 1938 and accidental ingestion of LSD in 1943 (Hofmann, 1980).[2] Hofmann later isolated and synthesized psilocybin in 1957 (Aronson, 2014; Hofmann, 1980).

Encouraged by the changes in consciousness and psychological effects caused by psychedelics, clinicians and researchers of the 1950s -1960s used psychedelics in the

[2] On April 19th, 1943, three days following Hofmann's first LSD experience, Hofmann intentionally ingested 250 ug (micrograms; the common dose for LSD is typically 50-100 ug), and when he bicycled home from his laboratory he began to feel the full effects of a LSD experience (Hofmann, 1980). April 19th is known as *Bicycle Day* worldwide, in honour of the first intentional LSD experience.

treatment of addiction, alcoholism, depression, anxiety, OCD and criminal behavior (Doblin, 1991, 1998; Nutt, King, & Nichols, 2013). In 1965, there were thousands of research papers published on the treatment potential of psychedelic substances examining over 40,000 research subjects, although much of the findings are based largely on anecdotal reports (Sessa, 2014). Other studies examined healthy participants, specifically analysing psychedelics' potential to increase creativity, spirituality and mysticism in people (Pahnke, 1963, 1966, 1967). The studies conducted in the second wave, although promising, lack the scientific rigor and objectivity required to make strong causal claims (Doblin 1991; 1998; Turnton, Nutt & Carhart-Harris, 2014).

Psychedelic research within the second wave is often associated with Harvard researcher Timothy Leary[3] who brazenly touted the benefits of psychedelic substances. Leary most famously led the *Harvard Psilocybin Project*, a series of psychological experiments involving psychedelics.[4] Culturally, there is somewhat of a *Leary-mysticism* that overtook this wave, which has unfortunately subsumed a vast amount of psychedelic research that occurred across North America under Leary's controversial shadow. Largely due to Leary's public speeches and writings, psychedelics became associated with the counter-culture and sub-cultural hippie movement of the 1960s and began to take on larger social meanings tied to anti-establishment and anti-mainstream (Belouin & Henningfield, 2018; Carhart-Harris et al., 2018c). In tandem with the surge in

[3] In 1971, President Richard Nixon famously referred to Timothy Leary as "the most dangerous man in America," in reference to his promotion of the counter-culture movement.

[4] These experiments are widely thought to be scientifically and ethically illegitimate. Leary, who was fired, was accused of coercing students to participate in research and using inadequate research methods (Moreno, 2016).

psychedelic research, the recreational and counter-culture use of psychedelics increased (Guzmán, 2009; Moreno, 2016).

In response to the increased recreational use of psychedelics, their perceived social meanings, and connection to anti-establishment behavior, in 1968 psychedelics were criminalized and classified as a Schedule 1 drug in the United States, and a controlled substance in Canada, effectively halting research (Belouin & Henningfield, 2018; Nutt et al., 2013). Wark and Galliher (2009) argue that Leary's psychedelic crusade changed the meaning of magic mushrooms from an unremarkable plant (*"an ostensibly harmless fungus,"* p.234) to an enemy of American political and social ideals. Due to the ban, there is currently a generation of scientific and medical researchers "…who know[s] nothing about hallucinogens other than the fact that they are subject to the strictest legal controls applied to any class of pharmacological agents," (Nichols et al., 2017, p. 132).

The *third wave* resurgence of psychedelic research quietly began in the early 2000s, catalyzed by research advocacy groups.[5] Sherwood and Prisinzano (2018) argue that this wave is stimulated by a social and cultural shift regarding the public's perceptions of psychedelics away from fear-based and deviant understandings to a place in where psychedelics are, at minimum, considered unremarkable and, at most, thought of as potentially beneficial. Others (Austin et al., 2017) have suggested that the re-evaluation of cannabis regulations in North America has contributed to this cultural shift by introducing the concept that an illicit substance can have therapeutic value. Lastly, this cultural shift may be supported by the internet, as it offers a space where information can

[5] Dr. Rick Doblin, Founder and Executive Director of *Multidisciplinary Association for Psychedelic Studies* (MAPS) is often credited as being a driving force behind the third-wave of psychedelic research. MAPS is a non-profit organization that has raised over $47 million for psychedelic research and education (MAPS, 2018).

be both widely and privately shared, facilitating increased dialogue about psychedelics that are "alternatives to the hegemonic narrative" (Walsh, 2011, p. 55). Within the third-wave, regulatory bodies (e.g., US Drug Enforcement Administration; US Food and Drug Administration; University Research Boards) have been increasingly amenable to psychedelic research and continue to approve studies (Rucker et al., 2017).

Increased contemporary psychedelic research prompted researchers to reflect on the tenuous relationship between psychedelic research and the social and cultural climate that research occurs within (Belouin & Henningfield, 2018; Goodwin, 2016; Nichols et al., 2017; Rucker et al., 2017; Sessa, 2014, 2018). Corbin (2012) argues psychedelic researchers are aware and sensitive of the political and social context of their work, and as a result, "keep all of their discussions of the significance of these potent substances well inside the bounds of dominant scientific epistemology and ontology," (p.1414) avoiding any explicit discussions of spirituality or mysticism that have been commonly associated with psychedelics. The third wave of psychedelic research is characterized by rigorous research methods and cautious findings (Sessa, 2014).

Unlike the second wave, which was well known for public displays of recreational use, little is known about recreational psychedelic users within the third wave. The stigma associated with psychedelics within the second wave is assumed to have heavily burden the third wave (see: Belouin & Henningfield, 2018; Carhart-Harris et al., 2018c). Sessa (2014) contends that the current psychedelic movement has ignored recreational psychedelic use in an effort to overcorrect against the 60s and 70s anti-mainstream and counter-culture depictions of recreational psychedelic use.

It is estimated that there are over 32 million lifetime psychedelic[6] users within the United States alone (Krebs & Johansen, 2013a). Canadian monitoring studies estimate a hallucinogen[7] lifetime prevalence rate of 12.2% within the national population (Statistics Canada, 2017a). Further, following cannabis use, hallucinogens are tied with cocaine/crack as the 2nd most commonly reported for past-year substance use (Statistics Canada, 2017a). These high rates in prevalence suggest that there likely is a diversity of psychedelic experiences to examine. However, we do not have a comprehensive understanding of who is using, why they are using, the context of their use, or what meanings are associated with psychedelics. Within the third wave, the biomedical perspective has dominated the role of psychedelics in recreational users' lives. Bøhling (2017) comments the lack of recreational psychedelic research, noting that we, "…paradoxically, have the least amount of knowledge about the largest group of users" (p. 134). It remains that the only public frame of reference for psychedelic recreational use are the highly-stigmatized counter-culture depictions of the 60s and 70s recreational user.

The Third Wave: A Tenuous Setting

Carhart-Harris et al. (2018c; citing Wallace, 1959; and Hartogsohn, 2015), draw on the concept of the *cultural feedback loop* (*Figure 1*) when describing the fragile context that psychedelic research and use occurs within. Specifically, Carhart-Harris et al. (2018c) argue that psychedelic research and recreational use occur within a culturally

[6] Defined within Krebs and Johansen (2013a) as LSD, psilocybin, mescaline and peyote.

[7] CTADS (2017a) uses the term hallucinogen to encompass PCP (angel dust), LSD, magic mushrooms, mescaline, peyote, 2C and NBOMe.

cyclical, perpetuating process. The cultural setting (e.g., media representation, public opinion, etc.) of psychedelics impact an individual's *set*, that is, their expectations and assumptions that they bring to their acute psychedelic experience. These acute experiences additively impact long-term outcomes (e.g., government policy, increased research) and responses to psychedelics as a whole, which refer back to the cultural setting. The third wave of psychedelic research is occurring within this self-referring sequence, where misinformation, perceived-negative recreational practices or mistaken individual assumptions could feed into a negative cultural feedback loop, and discontinue the current third wave of research, as was seen at the end of the second wave.

Figure 1: Cultural feedback loop

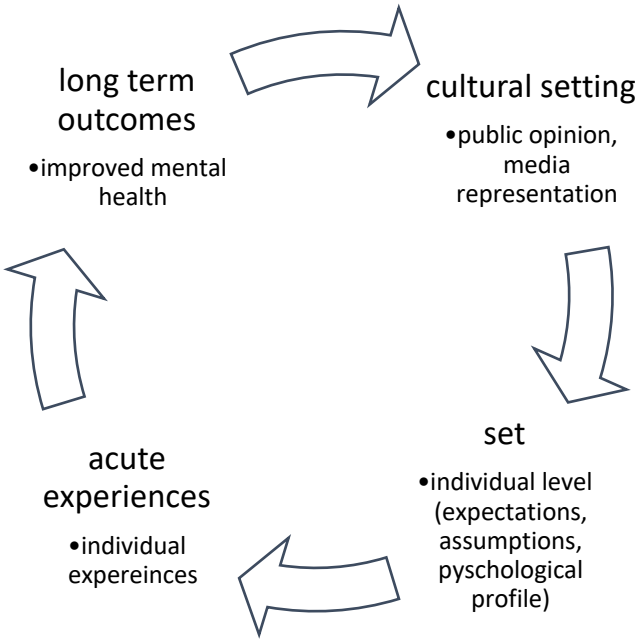


Figure 1: *Cultural feedback loop. Reproduced from Carhart-Harris et al., 2018c. The Cultural feedback loop is a self-referring sequence, scientific research is occurring in a larger cultural and social sphere.*

Statement of Problem

This is a critical time within the psychedelic revival. Second wave psychedelic research halted due to the associated meanings and stigma attached to recreational psychedelic use, and in an attempt to not replicate previous mistakes, third wave researchers have distanced their research from recreational use. However, this is may have other potentially unintended impacts: if psychedelic recreational users do not have adequate representation within the current revival and are left out of public discourse, their substance use behaviors and practices will likely be misrepresented.

High psychedelic lifetime and past-year prevalence rates and increased institutional support of psychedelic research indicate that the stigmatized counter-culture meanings attached to psychedelics are decreasing, and psychedelics are perhaps becoming accepted within the mainstream. These shifts suggest a possible *normalization* of psychedelics (Parker, Aldridge & Measham, 1998). The *normalization thesis* is a theoretical and methodological tool for examining roles and meanings attached to recreational substance use. A substance is considered *normalized* if it is not associated with *deviant*[8] behavior and its use is accepted in mainstream society (Aldridge, Measham, & Williams, 2011; Parker et al., 2002). Broadly speaking, the *normalization thesis* examines three domains: (1) the epidemiology of substance use (i.e., prevalence rates, sociodemographic profile of substance users, availably of substances); (2) substance use practices and behaviors (i.e., knowledge of substances, context of use, motivations for use) and; (3) attitudes and meanings associated with substance use and substance users

[8] This thesis uses the sociological definition of *deviance*: "the violation of social norms [which] encompasses the differences in behaviors, values, attitudes, lifestyles and life choices among individuals and groups" (Franzese, 2015, p.7).

(Aldridge et al., 2011; Cheung & Cheung, 2006; Egginton, Williams & Parker, 2002; Parker et al., 2002).

Within the third wave, it is crucial that we develop a comprehensive understanding of psychedelic recreational use. The meanings and social stigma attached to the recreational use within second wave are largely responsible for halting an entire field of research. Determining the role of recreational use has important social and cultural implications, and the study of the users will enrich and inform the scientific psychedelic community.

Current Study

I propose a mixed-methods study examining psychedelic use among recreational substance-using young adults aged 19-24 living in Victoria, British Columbia (BC). I examine recreational users, in particular, as this population has been largely ignored within the current third wave psychedelic revival (Bøhling, 2017; Johnstad, 2015; Móró, Simon, Bárd, & Rácz, 2011; Sessa, 2014). The study evolves through a lens that applies a *normalization thesis* (see: Aldridge et al., 2011; Parker et al., 1998, 2002) to recreational magic mushroom use (see *Chapter 2: Theory and Literature Review* for the rationale behind this approach). I contend that generating a thorough understanding of recreational psychedelic use and the recreational psychedelic user will: (1) described an under-examined population (Bøhling, 2017; Johnstad, 2015, 2018; Sessa, 2014), the recreational psychedelic user; (2) determine context and practices of use, which will ground the observed high rates of magic mushroom use; and (3) establish current meanings associated with substance use.

In reference to the *cultural feedback loop*, (*Figure 1;* Carhart-Harris et al., 2018c) recreational psychedelic use will produce information on the individual- and group- level experiences and conceptions of psychedelic substance use, which can inform the *set* and *acute experiences* concepts. More broadly, recreational substance use research will establish the cultural and social context and meanings of use, directly informing the *cultural setting* concept. In the following sections, I present a thesis that addresses this gap in knowledge. I argue that these recreational experiences and practices are critical for understanding how and why substances are used, which can have significant implications for clinical/medical research and the cultural setting of psychedelics.

Magic Mushrooms: Requiring a Special Focus

Within this research I focus on magic mushrooms, or *psilocybin,* specifically, instead of psychedelics in general or a different psychedelic for two reasons. First, magic mushroom use is high in the research setting, Victoria, BC. The Canadian Institute of Substance Use Research[9] (CISUR, 2015) determined that among young adult recreational substance users in 2010 - 2015, 28% of participants sampled (n=533) had used magic mushrooms at least once within the previous 30 days. Magic mushroom use has risen yearly since 2010; with use during the last 30 days increasing from 25% in 2010 to 40% in 2015 (CISUR, 2015). Past 30-day use of magic mushrooms is high compared with other psychedelic substances surveyed: 18% of participants had used LSD, and 12% had used Ketamine (CISUR, 2015). The high rates of magic mushroom use within Victoria are not unique. Among American young adults, 34 and younger, magic mushrooms are

[9] Formerly the *Centre for Addictions Research of British Columbia.*

the most commonly used psychedelic (Krebs & Johansen, 2013a). However, there is less literature to ground the high use of magic mushrooms as compared with other substances, like ecstasy, where consumption is also high (Hunt, Moloney & Evans, 2010; Olsen, 2009).

Second, I examined magic mushrooms outside the psychedelic category because of the different physiological responses and socio-cultural context in which specific psychedelic use occurs. For example, ketamine is a dissociative substance and linked to fatal overdoses (Government of Canada, 2015). Recreationally, ketamine use is reported in club and party environments (Liu, Lin, Wu, & Zhou, 2016); or is used withi sexual contexts, as ketamine enhances sexual pleasure (Pufall et al., 2018). In contrast, magic mushrooms heighten the senses: users report euphoria and spiritual experiences; fatal overdose is rare; and magic mushrooms are generally consumed in an outdoor nature environment (Government of Canada, 2015; CISUR, 2015).

Research Questions

With reference to the *normalization thesis* (Parker et al., 1998) the research questions are as follows:

1) What is the prevalence and sociodemographic profile of recreational magic mushroom use and users in in Victoria, BC?
2) What are the substance use practices among recreational magic mushroom users?
3) What are the attitudes and meanings associated with magic mushroom use?

Setting: Victoria, British Columbia

This study took place in Victoria, the capital city of British Columbia. The city is centered within the Capital Regional District metropolitan area and is surrounded by 13 other local governments that form the metro agglomeration: this area is the 15th most populated metro in Canada, home to over 383,000 people (Statistics Canada, 2017b). Due to the location of the University of Victoria (UVic) and over 22,000 registered students, the city has an active student population. In addition, due to the mild climate there is a large retirement community. Within Victoria-proper, 19.2% of the population identifies as being a visible minority or indigenous, and 80.2% of the population identifies as being of European descent (Statistics Canada, 2017b). Victoria is politically liberal, federally electing left-leaning parties consistently since 2006.

Regarding substance use culture in Victoria, cannabis has a high level of social and political accommodation. The city of Victoria began a regulation process for Cannabis dispensaries in 2016, in advance of the Canadian federal cannabis legalization expected in October 2018 (Cleary, 2018). There are 23 active dispensaries in the city. To compare, there are 24 liquor stores within the same area (CTV Vancouver Island, 2016).

Since 2015, BC has been in the midst of an overdose epidemic catalyzed by fentanyl. Fentanyl is a synthetic opioid that is combined into other substances, most often heroin, cocaine and methamphetamines. In 2017, there were a total of 1,449 reported overdose deaths, 84% of which contained a detectable level of fentanyl (BC Coroners Service 2018a, 2018b). To compare, in 2014, before the introduction of fentanyl into BC's substance supply, there were 368 overdose deaths across the province (BC Coroners Service, 2018a). Victoria has seen the third-highest levels of overdose fatalities

by township (BC Coroners Service, 2018a) and in 2016, a provincial public health crisis was declared (BCCDC, 2017). That is, while Victoria's reputation may be one of a tourist destination characterized by high tea at the Empress Hotel and whale watching, in reality the city is grappling with a range of issues relating to substance use and overdose.

Outline of Thesis

This thesis is divided into 5 chapters. *Chapter 1: Introduction* presented the context, history, research problem, and research objective of this thesis. *Chapter 2: Theory and Literature Review* discusses the theoretical framework, the *Normalization Thesis*, and presents a literature review on magic mushrooms, with emphasis on third-wave magic mushroom research. *Chapter 3*: *Methodology and Methods,* outlines the philosophical worldview, research design, and data collection methods applied to my research objective. *Chapter 4: Results* presents analytic findings. This thesis concludes with *Chapter 5: Discussion and Conclusion,* speaking to the relevancy, importance, and implications of this thesis.

Chapter 2: Theory and Literature Review

This chapter begins with a discussion on the theoretical framework applied in this research, the *normalization thesis* (Parker et al., 1998). First, I describe the *normalization thesis'* key theoretical principles and framework, as developed by Parker, Aldridge and Measham (1998). Next, I discuss the theoretical developments and the application of the *normalization thesis.* Following this, I present a literature review on magic mushrooms, describing magic mushrooms' pharmacology, cultivation, use, effects and legality. Additionally, this section addresses the current clinical and therapeutic third wave research and recreational magic mushroom research. I conclude with a discussion on the state of magic mushroom literature, and how I situate this thesis within the literature.

Theory: The Normalization Thesis

Illegal Leisure

Developed by Parker, Aldridge, and Measham (1998), the *normalization thesis* is a theoretical and methodological framework used to examine changing rates of recreational substance use (Pennay & Measham, 2016). Drawing from Wolfensberger's research on disability (1972, 1980), normalization refers to stigmatized or deviant groups and behaviors accepted within conventional life. Specific to substance use, normalization is the process of substance use moving from the sub-cultural fringes of society into the mainstream. Described as a "multi-dimensional toolkit" (Parker et al., 2002, p. 942), the *normalization thesis* embeds epidemiological substance use rates within the socio-cultural context of the substance user. Importantly, normalization is not a static state. It is a *process*, and the *normalization thesis* is a "*barometer of change*" (Parker, 2005, p. 208).

The thesis developed from a 5-year longitudinal examination of approximately 1,000 young Britons, aged 14-25 (see: Parker et al., 1998, 2002). Findings revealed that 25% of participants were recreational substance users by the age of 21, and over half of participants had used an illicit substance by the age of 18 (Parker et al., 2002). Of participants aged 18-21, 76% had used an illicit substance at least once in their lifetime. Ethnicity, gender and class analysis could not account for these changing rates and showed a wide-spread use across sociodemographic categories.

Further, substance use context and behaviors were diverse. Young people were using substances in a variety of settings and did not ascribe sub-cultural attachments to substance-use (e.g. only hippies use psychedelics). Instead, illicit substances were being used by a wide-range of "well-adjusted and successful goal-oriented, non-risk taking young persons who see drug taking as part of their repertoire of life" (Parker 1997, p. 25). Finding existing frameworks of sub-culture affiliation or deviance (Becker, 1963) did not adequately explain changing substance use rates, behaviors and meanings, Parker, Aldridge and Measham (1998) formulated the *normalization thesis.*

Parker and colleagues (1998, 2002, 2005) explained substance use as the result of a broader transformation of youth and young adulthood culture. They contend that globalization, reshaped gender and social roles, evolution in social structures, and changes in the labour market created a new developmental life-stage for youth and young adults. Called *emerging-adulthood* by other researchers (Arnett, 2000, 2007, 2015) this life-stage is characterized by the delay of traditional adulthood traditional adulthood milestones (e.g., marriage, buying a home, having a baby). Emerging adults experience decreased institutional supports, decreased parental influences, and increased

independence (Arnett, 2007). That is, emerging adults are not yet burdened with adulthood responsibilities , allowing opportunities to explore diverse lifepaths and options. Arnett (2004a; 2004b) argues that emerging adults experience uncertainty of the future, instability in work situations and romantic relationships, along with optimism about personal life-goals and an individualistic focus on personal needs and desires. Within this life-stage recreational substance use can increase (Arnett, 2007), as illicit substances are more readily accessible through increased social networks (Sussman et al., 2011), there are more opportunities for leisure time as a result of increased independence and decreased supervision (Sussman & Arnett, 2014), and experimentation is highly valued (Parker et al., 1998).

In contrast to substance using youth and young adults of the past, Parker, Aldridge and Measham (1998) argued that the new recreational substance user is sensible, deliberate, and strategic in their substance use practices. The *normalization thesis* explained the decision-making process through a rational action model, where the decision to use substances was based on a cost-benefit analysis. The choice to use/not use substances becomes an individual assessment gauging perceived risks (i.e. health, impact on school or work) with substance-use benefits.

Parker, Measham and Aldridge (1998) contended that decisions are not peer-based. Instead, decisions relate to individual identity, preferences and desires (Parker et al., 1998). For many young people, the rational decision to use substances manifested as a leisure activity, where substances are used to take a *time-out* from society. This is different from generations past, where substances had sub-cultural affiliations (e.g.

psychedelic using hippies, meth using mods) and were used as a mechanism of group-identity and a marker of group rebellion and deviance.

Broadly speaking, normalization is concerned with three overarching concepts: (1) substance use prevalence and sociodemographic profile (2) substance use practices and behaviors; and (3) attitudes and meanings attached to substance use (Aldridge et al., 2011; Parker et al., 1998, 2002). Diverse sociodemographic substance-using populations, high prevalence rates of substance use, reasoned and diverse substance use practices, and a lack of sub-cultural affiliation are factors that speak to substance use normalization. In addition to these factors, Parker et al. (1998) outlined six dimensions to assess normalization: access/availability; drug-trying rates; high levels of knowledge; rates of regular use; social accommodation; and cultural acceptance. These dimensions are "ways to measure the scale and limits of normalization" (Parker et al., 2002, p. 944). These dimensions are *indicators* of the normalization process, and if present, signify the need for deeper analysis concerning substance use meaning, practices, behaviors and context.

Normalization Thesis: Debates and Application

The *normalization thesis* has been called "one of the most significant theoretical developments to have emerged in the youth and drug studies literature" (Pennay & Measham, 2016, p. 187). Since the publication of the *normalization thesis* – what the authors themselves have referred to as "rather crude beginnings" (Parker et al., 2002, p. 943) – researchers have debated and re-conceptualized the *normalization thesis (*see: Blackman, 2004; Gourley, 2004; Shiner & Newburn, 1997, 1999). Notably, Shildrick (2002) introduced the concept of *differentiated normalization,* where different types of drugs and different types of drug use are accepted within specific contexts (see:

MacDonald & Marsh 2002; Van Hout, 2011). Normalization conceptualized by Parker and colleagues (1998; 2002) was deemed too simplistic to appropriately interpret the nuances of substance use (Shildrick, 2002; Van Hout, 2011). In particular, Shildrick takes issue with what she perceives to be the thesis' inappropriate data interpretation of complex and nuanced conditions.

Regarding data interpretation, the *normalization thesis* is largely supported by the quantitative longitudinal findings indicating an increase in substance use among young people, diverse sociodemographic populations, and varying contexts of use. From these findings, Parker et al. (1998, 2002) argued that population-level changes in substance use patterns indicates that substance use is not a sub-cultural activity but is instead an accepted and sensible practice within dominant culture. Shildrick (2002) and other critics (Sandberg, 2012, 2013; Shiner & Newburn, 1997) followed with arguments that sensible use cannot be established through population-level changes in prevalence and sociodemographic measures. For Shildrick (2002), sensible use is socially constructed and can only be understood through examining the micro-experiences of substance users. Shidrick argues that using population-level data creates a generalized "meta-narrative" that does not examine essential influences of social and economic class on individual substance use decisions (p.45).

Other researchers have challenged the assumptions of the *normalization thesis.* For instance, Rødner Snitzman (2008) argues Parker et al. (1998; 2002) erroneously assumed that mainstream and sensible use indicated an absence of stigma. Referred to as *assimilative normalization,* Rødner Snitzman viewed sensible use decisions as a way in which substance users managed deviant behavior to comport to conventional social and

cultural norms. Sensible use, then, becomes defined by the application of moderation and control, which in turn legitimizes substance use. Central to *assimilative normalization* is that substance users see their substance use as deviant, but it can be re-conceptualized as sensible use if the substance user can apply mainstream values to substance use practices as a way to normalize the practices and the user. Pennay and Moore (2010), argue in favour of *assimilative normalization*, viewing substance use as a micro-political reconciliation between a stigmatized act, societal values, and the pleasure derived from substance use.

The most significant change within the *normalization thesis* literature was introduced by Measham and Shiner (2009), who contended that earlier conceptions of normalization failed to recognize the significant role of structure. Measham and Shiner indicated that substance use normalization should be understood as "as a contingent process negotiated by distinct social groups operating in bounded situations" (p.502). Instead of substance use being the result of reasoned and rational decision, Measham and Shiner embedded decisions within the user's context, with reference to the influence of class, gender, age, and ethnicity.

This was a departure from the rational model of the *normalization thesis* (Parker, et al., 1998). Rather than substance use being the result of reasoned and rational decision, Measham and Shiner (2009) situated substance use decisions within a broader structural framework that recognized the bounds of sociodemographic divisions. They argued that the *normalization thesis'* emphasis on the rational action model prioritized the individual, and thus, individualizes substance use. Drawing on Blackman (2004), Measham and Shiner argued individualized substance use falsely reduces the role of structural inequity

and the hegemonic cultural and social forces within decision-making processes. Instead, normalization is understood to be both a process and negotiation between the individual and their bounded situation, influenced by social groups, local culture, and the political and economic context (Pennay & Meahsam, 2016).

Researchers have also suggested other factors which many indicate normalization. Based on a 35-country multi-level study, Snitzman and colleagues (2013) argued that substance use lifetime prevalence rates of 40% or above within a general population are evidence for normalization. In addition, Sznitman and Taubman (2016) identified qualitative normalization studies (Egginton et al., 2002; Hutton, 2010; MacDonald & Marsh, 2002; Ravn, 2012) which suggested that the use of a substance to achieve *normal/conventional goals* (e.g., using substances to be creative, productive and/or for increasing social connections) indicate normalization of the substance, as using substances as a mechanism to meet conventional goals demonstrates that the substance is a tool of everyday life.

Normalization is applicable to a variety of substance use research. Cannabis use, in particular, has been heavily examined, with results indicating a normalization of cannabis in North America and Europe (see: Asbridge, Valleriani, Kwok & Erickson, 2016; Duff et al., 2012b; Kolar, Erickson, Hathaway & Osborne, 2018; Lau et al., 2015; Mostaghim & Hathaway, 2013; Snitzman, 2007, Snitzman et al., 2015). The normalization thesis is applied at both the general population level (see: Hammond et al., 2006; Pape, Rossow, & Storvoll, 2008; Sznitman et al., 2015) and sub-population level. Examples of different sub-populations examined include clubbers in New Zealand (Hutton, 2010), male gang members (Mackenzie, Hunt & Joe-Laider, 2006), and Baby

Boomers in San Francisco (Lau et al., 2015). These studies are alike in that they recognize the dynamic nature of normalization and have adapted and developed the *normalization thesis* with reference to the substance or population being examined

Presently, there is an established consensus that the way in which normalization exhibits itself is context specific and dynamic (Pennay & Measham, 2016; L. Williams, 2016). Researchers have moved away from strictly examining the six dimensions, and instead moved toward a more contextual understanding of normalization (L. Williams, 2016). This approach recognizes that normalization may look different depending on the substance and context and is influenced by the bounded situation of the user and group (Asbridge et al., 2016; Cheung & Cheung, 2006; Newcombe, 2007; Shildrick, 2002; Taylor, 2000). In practical terms, this means applying the main tenants of normalization, and analyzing outcomes with a nuanced understanding of context and structural forces (L. Williams, 2016). This research will contribute to the normalization literature by testing the applicability of the thesis to recreational magic mushroom use. To date, there is no normalization study to my knowledge that examines the recreational use of a specific psychedelic substance.

Literature Review: Magic Mushrooms

In this section I present a literature review on magic mushrooms. I discuss magic mushroom's chemical and pharmacological profile, effects, cultivation, legality and rates of use. I examine the recreational and the clinical/therapeutic magic mushroom research to date, focusing on the research occurring within the current psychedelic research revival. The psychedelic literature is growing quickly and changing rapidly. This

literature review concludes with an overview of the major studies and findings within the psychedelic research field.

Literature Review Methods

Database searches were conductive in an iterative manner between October 2016 – June 2018. Key search engines used were Google Scholar and UVic Summons, and key databases used were PubMed, PsycHINFO, and Academic Search Complete. Search terms included "hallucinogens," "psilocybin," "magic mushrooms" and "psychedelics." In addition, reference lists of included articles were reviewed, "related publication" links were referenced, and searches by author.

Chemical and Pharmacological Profile

Magic mushrooms are a psychotropic fungus, containing the active psychedelic ingredient *psilocybin* (Cunningham, 2008). Pharmacologically, psilocybin is considered safe, in that it appears to have no negative impact on organs, does not impact hormone or blood sugar levels, is non-addictive, and is virtually impossible to overdose on due to low acidity levels (Nichols, 2004). Recreationally, psilocybin is administered orally, typically though a tea or combining the magic mushroom with food. In a clinical setting psilocybin is administered intravenously (e.g., Carhart-Harris et al., 2016, 2018a; Griffiths et al., 2011).

Psilocybin's chemical structure is similar to that of serotonin, and as a result, interacts with serotonin receptors in the brain, particularly the 5-hydroxy-triptamine (H-HT) receptors (Carhart-Harris et al., 2017c; Nichols, 2004). Psilocybin has been shown to increase cortisol levels and activate the executive control network, which can result in

increased emotional regulation and a decrease in negative emotions (de Veen et al., 2016). Psilocybin re-structures established functional connectivity networks within the brain, simultaneously dismantling and re-patterning information transmission, spatiotemporal patterns, and enabling a wider range of brain activity (Carhart-Harris et al., 2012a, 2012b, 2017b; Tagliazucchi et al., 2014). Functional magnetic resonance imaging (fMRI) in healthy participants shows that that following intravenous psilocybin administration, new organized networks are established between different brain networks and regions (*Figure 2*, Petri et al., 2014). Carhart-Harris and colleagues (2012a, 2012b) have suggested that this re-organization creates an alternate network of consciousness, which may encourage feelings and experiences that cannot be felt without psilocybin.

In addition, this neurological re-organization leads to reduced coupling and decreased activity between the medial prefrontal cortex and the posterior cingulate cortex. These neurological areas are within the default mode network, an area suggested to regulate self-identity and consciousness[10] (Carhart-Harris et al., 2012a). Specific to psilocybin's association with reduced symptoms of depression, the medial prefrontal cortex is hyperactive within depressive states. Psilocybin causes reduced activity within this area, which may explain the decreased depressive symptoms within patients (Carhart-Harris et al., 2012b, 2016, 2017a). Despite these findings, the neurological mechanisms and pharmacological interactions of psilocybin and neural receptors are not presently conclusively established (Swanson, 2018).

[10] Neuroscientists debate the exact role of medial prefrontal cortex and the posterior cingulate cortex.

Figure 2: Functional neurological connectivity differences between placebo and psilocybin

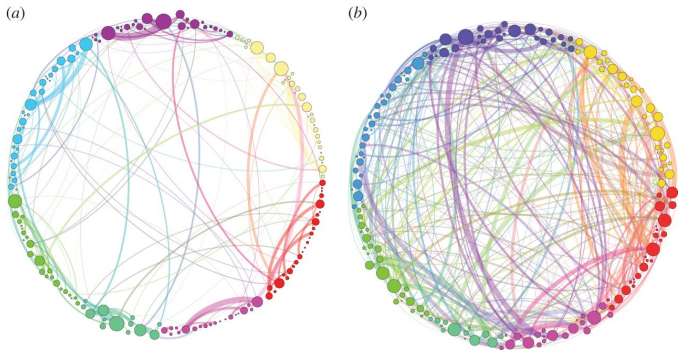


Figure 2*: Functional neurological connectivity differences between placebo and psilocybin. A comparison between (a) participants given a placebo and; (b) participants given psilocybin. This is a simplified illustration of neurological activity.*

Effects

The hallucinogenic content of magic mushroom varies: generally, the content of psilocybin is between 0.2 – 1% of the dry mushroom weight (Tylš, Páleníček, & Horáček, 2013). Typically, psilocybin is 100 times less potent than LSD (Nichols, 2004). A trip dose on average, is 3.5 grams (gm) of dried *psilocybin cubensis*, the most common strain of magic mushrooms (Beck, Karlson-Stiber & Stephannson, 1998). Recreationally, the effects and intensity of psilocybin are not reliably predicted by magic mushroom dosing (i.e., a larger dose does not reliably equate to a larger effect) as quantity and strength psychedelic compound within the magic mushroom is variable, and the intensity of effects are influenced by the user's metabolic capacity and tolerance to psychedelics. Within a clinical setting, where psilocybin administration can be rigorously controlled, a dose-effect response has been established, in where higher doses of psilocybin are associated with increasingly intense effects (Griffiths et al., 2011, 2018).

The onset of a magic mushroom trip begins 30-60 minutes after consumption (Nichols, 2004). If taking a hallucinogenic dose, or a "trip dose," the effects generally last 4-6 hours. A user will experience different effects at various timepoints during their trip, with some effects having a greater probability of occurring during onset, peak or come-down (Preller & Vollenweider, 2016). Removed from neuropharmacological responses, the effects experienced are determined by a variety of factors, categorized under the concepts *set* and *setting* (Hartogsohn, 2016; Studerus, Gamma, Kometer & Vollenweider, 2012).

Psilocybin causes perceptual changes, ranging from intense colour saturation to complex visual hallucinations (Kometer & Vollenweider, 2016; Preller & Vollenweider, 2018). Some users have reported synaesthesia, the merging of senses (e.g. seeing sound, hearing colour) and altered sense of time. Many users also report phenomenological effects, including: change in emotions; feeling intense euphoria and bliss; ego-dissolution; increased introspection; and consciousness changes (Studerus, Kometer, Hasler, & Vollenweider, 2011; Turnton, et al., 2014). Magic mushrooms can also cause mystical experiences, a state of being that is often associated or described in religious terms (Doblin, 1991; Griffiths, Richards, McCann, & Jesse, 2006, 2008; Griffiths et al., 2011, 2018; Pahnke 1963; Doblin 1991). Phanke et al. (1970) defined a mystical experience as the subject experiencing: (1) sense of unity and oneness; (2) transcendence of time and space; (3) positive mood; (4) sense of wonder; (5) meaningfulness and; (6) ineffability (i.e. the experience cannot be explained). Each dimension of a mystical experience can occur within isolation during a magic mushroom trip, but the combination of these dimensions and sates qualifies as a mystical experience.

Negative psychological experiences or challenging experiences (colloquially called *bad trips*) are generally associated with over-stimulating environments and a negative individual psychological state (Carhart-Harris et al., 2018c; Hartogsohn, 2016). Case-reports of recreational bad trips depict generally short-term psychological symptoms, such as anxiety and confusion (Riley & Blackman, 2008; Sellers, 2017). Clinical research suggests that challenging experiences generally include a combination of the following effects or states: fear or panic, paranoia, sadness, anger, cognitive effects (e.g. perceived loss of sanity, ego-loss), perceptual effects (e.g., hallucinations) and physiological effects (e.g. nausea; Carbonaro et al., 2016; M.W. Johnson, Richards, & Griffiths, 2008). Other research has suggested that challenging experiences while on magic mushroom are linked to the user having neuroticism characteristics (F.S. Barrett, Johnson, & Griffiths, 2017).

A John Hopkins internet survey study (Carbonaro et al., 2016) of 1,993 individuals who had experienced a recreational challenging experience (i.e., bad trip) found that within the sample, 39% indicated that the challenging psychedelic experience was one of the top five most challenging experiences of their lifetime, and 2.7% of the total sample received medical attention. However, within this sample, 84% who had experienced a challenging experience indicated that in the long-term, the experience was beneficial. There was an association between highly rated negative experiences and self-reported increases to enduring life satisfaction. Carhart-Harris et al. (2016) have echoed this finding, determining a positive trend level association between thought disorganization (characterized as an adverse effect) and positive personality changes.

Some magic mushroom users have reported long-term personality changes as a result of their magic mushroom experience, including increase in openness to new experiences (MacLean, Johnson, & Griffiths, 2011); positive effects based on spiritual experiences (Griffiths et al., 2006, 2008, 2011, 2018); and increased transcendence (Bousou, dos Santos, Alcázar-Córcoles, & Hallak 2018). Long-term changes have been reported to up to 25 years from the magic mushroom experience (Doblin, 1991). A double-blind dose-effect study (Griffiths et al., 2011) of healthy participants showed that higher doses of psilocybin produced mystical-type experience in 72% of participants, an experience which participants attributed to sustained, personality and mood changes at 1- and 14-month follow-up. Despite the mechanism that causes these long-term changes being unknown, researchers are attempting to apply the effects of magic mushrooms to a variety of medical and therapeutic concepts (*further discussed below*).

Cultivation and Legality

Magic mushrooms grow in most world regions (Guzmán, 2009). In Victoria, the study setting, magic mushrooms grow in the wild. Anecdotally, participants in the present study reported finding magic mushrooms growing on the University of Victoria campus and on the BC Legislature lawn. Worldwide, there are approximately 180 different psychedelic mushroom species (Andersson, Kristinsson, & Gry, 2009; Guzmán, 2005).

The use and possession of psilocybin is illegal in most counties. In Canada, psilocybin is a schedule III substance under the *Controlled Drugs and Substances Act* (Government of Canada, 2012). Schedule III substances are hallucinogens and amphetamines. Possession, trafficking or exportation are punishable by prison terms of a maximum of 10 years (Government of Canada, 2015). However, there is somewhat of a

grey area surrounding psilocybin – no restrictions exist for possession of magic mushroom growing kits and psilocybin spores.

In the United States psilocybin is a Schedule I substance. It is illegal to possess, sell or transport psilocybin. A Schedule I substance is defined as: (1) having a high potential for abuse; (2) having no currently accepted medical use in treatment in the United States; (3) lacking accepted safety for use of the drug or other substance under medical supervision (United States Government, 2014). Some magic mushroom researchers and proponents have speculated that the harsh classification of magic mushrooms may change in upcoming years, as magic mushrooms do not have a high potential for abuse, they have an accepted medical use in treatment, and there is an established level of safety in use (Tupper et al., 2015).

Rates of Use

It is difficult to definitively determine the prevalence of recreational psychedelic substance use, due to reporting limitations and psychedelic illegality. Krebs and Johansen (2013a) have estimated that there are 21 million lifetime magic mushroom users over the age of 12 who have used magic mushrooms recreationally. Canadian studies have established young adult recreational substance user lifetime psychedelic[11] (i.e., LSD, mescaline, magic mushrooms, peyote) prevalence to be between 73 – 97% (S.P. Barrett, Darredeau, & Phil, 2006; CISUR, 2015; Olthuis, Darredeau, & Barrett, 2013). However, it is not possible to extrapolate these figures to the general Canadian population, as these studies have sample sizes between 149 and 556 participants and examine only

[11] Psychedelic includes LSD, magic mushrooms, and other plant-based hallucinogens (e.g. peyote, ayahuasca; S.P. Barrett et al., 2006; CISUR, 2015; Olthuis et al., 2013).

recreational substance using young adults (S.P. Barrett et al., 2006; CISUR, 2015; Olthuis et al., 2013). The Canadian Tobacco Alcohol and Drugs (CTADS) survey reports on magic mushroom use within the halluciongen category, including PCP (Angel Dust), mescaline, peyote, LSD and research chemicals 2C and NBOMe in reported hallcuongen data (Statistics Canada, 2015). In total, lifetime halluciongen use is estimated at 12% (~4.4 million) within the Canadian population.

The CISUR *Alcohol and Other Drugs Monitoring Study* (AOD) has collected data specifically examining magic mushroom use in Victoria. Between 2012 – 2015, 93% of Victoria young adults (n =1, 310) using magic mushrooms at least once in their lifetime, and 28% using magic mushrooms at least once with the previous 30 days (CISUR, 2015). Although these epidemiological magic mushroom studies (S.P. Barrett, Darredeau, & Phil, 2006; CISUR, 2015; Olthuis, Darredeau, & Barrett, 2013) do show that young adults use magic mushrooms at high prevalence rates it is difficult to make fruitful comparisons between the studies due to methodological differences and the lack of comparable studies.

The Current Psychedelic Revival

Clinical Research

The current psychedelic revival is largely focused on the clinical application of psychedelics to mental health and substance dependence conditions. There exists a small amount of early phase clinical trials which have a significant relationship between psilocybin and the treatment of OCD (Moreno et al., 2006); anxiety and depression in terminal cancer patients (Griffiths et al., 2016; Grob et al., 2011; Ross et al., 2016);

tobacco addiction (M.W.Johnson et al., 2014; 2017); alcohol dependence (Bogenschutz et al., 2015); and treatment resistant depression (Carhart-Harris et al., 2016, 2018a). Importantly, all aforementioned clinical trials have small sample sizes (*range*: 9 – 51) and use existing psychotherapy or psychological therapies in combination with psilocybin. Thus, results of these studies must be considered with caution. These studies are alike in that they are attempting to harness the phenomenological effects caused by psilocybin – that is, the changes in personal experience of unity, connectedness, meaning, ego-loss, consciousness, and thought – to complex health problems (Carhart-Harris et al., 2016, 2018b; Swift et al., 2017).

Specific to anxiety, a number of double-blind, placebo-controlled, randomized trials have associated psilocybin therapy in conjunction with psychotherapy with a reduction in end-of-life-distress and anxiety in cancer patient populations (Griffiths et al., 2016; Grob et al., 2011; Ross et al., 2016). Griffiths et al. (2016), in a double-blind randomized control trial (n=51), reported significant decreased in end-of-life anxiety, with results lasting up to 6 months. Qualitative interviews with cancer patients who participated in Phase 2 psilocybin research trials described their psilocybin experiences as reconnecting them to life and reported increased confidence in the face of cancer reoccurrence and an emotional uncoupling from cancer (Swift et al., 2017). Carhart-Harris & Goodwin, (2017a) note that anxiety and end-of-life distress is often treated with conventional pharmaceuticals, which supress emotions. Psychedelics enhance emotions and create a context where the psychedelic user can confront issues and trauma with increased openness (Carhart-Harris & Goodwin, 2017a; Lebev 2014). This has resulted in

some researchers questioning if psilocybin is a drug, form of psychotherapy, or both (Goodwin, 2016).

Psilocybin has been applied to other addiction and substance dependence research. Johnson et al. (2014), in an open-label pilot study (n=14) of tobacco dependence determined that psilocybin use in combination with cognitive behavioral therapy was associated with tobacco cessation. Approximately 80% of participants quit smoking and remained non-smokers at the 6-month follow-up, exhibiting higher success rates than traditional therapies. Johnson and colleagues (2017) found that participants who successfully reduced or quit tobacco reported a change in life priorities and values following psilocybin therapy. Results showed that participants who relapsed during the study period rated their psilocybin experiences as lower in personal meaning and spirituality, as compared to participants who reduced consumption or quit tobacco. Results from Bogenshutz and colleagues' (2015) open-label clinical trial demonstrated positive results, with participants (n=10) reporting significant decreases in drinking behaviour for up to 9 months following psilocybin treatment combined with motivational therapy sessions.

Some researchers view the use of psychotherapy and psychological therapies in combination with psilocybin as being essential for successful treatment (M.W. Johnson et al., 2008). However, due to the presence of therapies in addition to psilocybin administration, psilocybin's contribution to positive health outcomes cannot be conclusively stated. Mental health and substance dependence are complex health problems, and ethically, researchers are unlikely treat these populations without an established psychotherapy or psychological therapy (Rucker et al., 2017; Sellers et al.,

2017). Future clinical trials will have to navigate this issue, ensuring that they balance patient safety and productive scientific inquiry.

Population-Based Studies

Population-based research has demonstrated positive relationships between lifetime experience of psychedelics and beneficial long-term personality changes and mental health outcomes (Bouso et al., 2018; Forstmann & Sagioglou, 2017; Johansen & Krebs, 2015; Lyons & Carhart-Harris, 2018). For example, lifetime experience with magic mushrooms or psychedelics has been associated with: reduced criminal behavior and recidivism among substance-involved offenders (Hendricks et al., 2014, 2018), reduced suicidality (Hendricks et al., 2015a, 2015b); and pro-environmental behavior (Forstmann & Sagioglou, 2017). A recent study (Thiessen, Walsh, Bird, & Lafrance, 2018) determined that males who had used LSD and/or magic mushrooms had decreased odds of committing domestic violence against their current partner, and the participants who had reported lifetime use of LSD and/or magic mushroom had stronger emotional regulation skills than participant who did not have LSD and magic mushroom experience. According to Hendricks et al. (2018) results from longitudinal, population-based studies provide an important knowledge base to develop Randomized Control Trials, and the findings have greater generalizability, which can establish relevancy in the real-world setting.

Healthy Patients

There are few studies that examine positive experiences in healthy patient populations (Walsh, 2016). Paradoxically, the positive outcomes resulting from healthy

patient studies are partially responsible for the attention within the third wave of research turning to unhealthy patient populations (Carhart-Harris & Goodwin, 2017a). Griffith's et al. (2006) seminal double-blind randomized controlled study examining healthy participants found that psilocybin experiences were associated with long-term psychological improvements. In a 14-month post-treatment follow up, 67% of participants self-reported that their magic mushroom experience was one of the most meaningful spiritual experience of their lives, and 58% reported that it was within the 5 most personally significant experiences within their lives. These findings encouraged other researchers within the field to apply psilocybin therapies to mental health conditions (Carhart-Harris & Goodwin, 2017a).

Since Griffith et al.'s (2006) study, clinical trials have generally not involved healthy participants. However, of the small number involving healthy participants that have occurred since the 2006 study, significant long-term benefits have been recorded. Griffiths and colleagues (2018) recently published findings from a dose-effect, double-blind Randomized Control Trial of healthy participants. Participants (n=75) were divided into 3 different psilocybin dose groups, and all completed a meditation and spiritual program. As compared to the low dose psilocybin participants, high dose participants reported positive personality changes at the at the 6-month follow-up, exhibiting significant changes in interpersonal closeness, gratitude, life meaning and purpose, daily spiritual experiences, and religious faith. Long-term changes were attributed to the mystical-type effects caused by magic mushrooms in combination with consistent meditation and spiritual practice. The concept of mysticism is questioned within this field, with some researchers expressing they find the term *mystical* problematic or are of

the position that mystical experiences are irrelevant to developing psilocybin's clinical applications (Carhart-Harris & Godwin, 2017a).

Recreational Magic Mushroom Use

Spirituality

The recreational magic mushroom literature is largely focused on motivations of use. There is a well-established history of magic mushrooms being used across cultures as a sacred and spiritual tool (Guzmán, 2009). Magic mushrooms continue to be popular among recreational users for their ability to licit mystical experiences (Hallock, Dean, Knecht, Spencer, & Taverna, 2012; MacLean et al., 2011) A study (Móró et al., 2011) of substance users and non-users (*n*=667) found that psychedelic substance use was positively correlated to participant spirituality. Similarly, in an American cross-sectional study of undergraduate university students (*n*=882), the top reasons for trying magic mushrooms for the first time were *curiosity*, *achieving a mystical experience*, and *introspection* (Hallock et al., 2012, p. 246).

Spiritual experiences are commonly reported by magic mushroom users. In a web-based questionnaire (Carhart-Harris & Nutt, 2010), magic mushroom using participants (*n*=503) located in the United States, United Kingdom and Canada reported spiritual experiences (81%) and accessing the unconscious mind (93%) during magic mushroom use. People who have used psychedelics are more likely to hold mystical beliefs, and value spirituality than their non-psychedelic using counterparts (Lerner & Lyvers, 2006, Móró et al., 2011). Despite the important role of spirituality and mysticism within recreational magic mushroom use, it remains a somewhat nebulous concept, as the meaning and practice of spirituality can be highly subjective and ambiguous.

Johnstad (2015), specifically examining the spiritual use of hallucinogens, conducted email interviews (n=5) and group interviews in online discussion threads (n=11). Participants were predominantly males in their 30s and 40s, with socially conventional lifestyles (i.e., stable jobs, homeowners). All participants used hallucinogens[12] to create spiritual experiences. Participants reported carefully preparing their *set* and *setting* weeks in advance. Johnstad notes that participants spoke of *set* and *setting* with an "almost pedagogical overtone," expressing that perpetration and premeditation was essential for a positive experience (p.553). Participants viewed hallucinogens as *self-regulating substances* with benefits of hallucinogen use that could be maximized when moderately used, particularly when the experience is well-planned. Challenging experiences (i.e. *bad trips*) were viewed as the result of not sufficiently preparing for the event. However, the majority of participants who reported challenging experiences, retrospectively saw them as positive, describing the experiences as "difficult learning experiences that have valuable long-term impact" (p. 556).

Therapy and Micro-dosing

There is some evidence to suggest that recreational users are utilizing magic mushrooms for therapeutic or medical purposes. Within Carhart-Harris and Nutt's (2010) web-based questionnaire, of the magic mushroom using participants (*n*=503), 18% reported that psilocybin use had *definitely* helped them with a physical or mental health issue, with 4.8% reported that it helped with depression, 2.8% reported alleviation of anxiety, 1.2% reported using it to address a substance use addiction, and 1% reported

[12] Johnstad (2015) uses *hallucinogens* to refer to LSD, magic mushrooms/psilocybin, cannabis, MDMA, ayahuasca and DMT. LSD and magic mushrooms/psilocybin were the most commonly used substances among participants.

using it to help with headaches or migraines. The dosages that participants consumed were not reported within this study.

Regarding headaches and migraines, there is some research suggesting magic mushrooms being as an effective treatment option. For example, in Sewell, Halpern and Pope's (2006) retrospective diary study, of 26 participants who self-administered psilocybin during a cluster headache episode, 22 reported that the psilocybin stopped the cluster headache attack. In Andersson, Persson and Kjellgren's (2017) thematic analysis of online forum discussions, participants reported positive outcomes when self-medicating treatment-resistant cluster headaches and migraines with psilocybin. Results showed that this was often a last resort for participants. Currently, there are two registered clinical trials examining the relationship between psilocybin and migraines or cluster headaches (*VA Connecticut Healthcare System and the West Haven Campus studies*).

Connected to the therapeutic use of magic mushrooms is micro-dosing, the practice of consuming a sub-perceptual dose (0.2 – 0.5 gm) of magic mushrooms (Fadiman, 2011). This does not illicit a hallucinogenic or physical response. Anecdotal reports and autobiographical accounts report improved mental health states, increase creativity, higher energy levels, emotional regulation and increased focus (Andersson, et al., 2017; Fadiman, 2011; Waldman, 2017). For the users, the outcomes of micro-dosing have therapeutic and self-enhancement applicability. Importantly, micro-dosing requires a certain level of planning and strategy: micro-dosing advocates recommend following a micro-dosing schedule (typically, taking a micro-dose every third day), and keeping detailed notes on your feelings and behaviours through the day (Fadiman, 2011).

At the time of writing there was only one published, peer-reviewed study on psychedelic micro-dosing. Johnstad's (2018) qualitative study interviewed 21 male participants about their micro-dosing practices and behaviors. Interviews were conducted through private internet messaging data, and participant were recruited through psychedelic internet forums. Participants reported improved, mood, cognition and creativity. Some participants micro-dosed to self-medicate anxiety and depression. Logistical challenges were often cited as a barrier to micro-dosing, with some participants unintentionally consuming too large of a dose, or having difficulties following a consistent dosage-regime. The study concluded that additional research is required on micro-dosing to better understand all aspects of dosing, use, and impacts and recruiting participants through methods to minimize selection bias.

Pleasure

Lastly, recreational research has shown that magic mushrooms are used because they illicit a pleasurable and beneficial experience. Recorded benefits include improved perspective, optimism, self-acceptance, well-being, creativity; euphoria and a greater appreciation of nature (Carhart-Harris & Nutt, 2010; Riley & Blackman, 2008). Riley and Blackman (2008), in a study of 174 magic mushroom users reported that the top reason for using magic mushrooms was *for a laugh* (66.1%). Other reported reasons for using magic mushrooms were *happiness* (37.4%), *celebration* (37.4%), and *socializing* (27.6%). This recreational research does not speak to the social and cultural context of use, meanings of substance use, or the conceptualizations of magic mushrooms users. Further research needs examine substance use practices in the user's context to develop a comprehensive understanding of magic mushroom use.

Conclusion: Disengaged Voices

The current psychedelic revival is producing promising and novel research results applicable to a range of health conditions. The dominant perspective of this revival has been clinical, which presents a de-contextualized and obscured perspective of psychedelic use and experience (Bøhling, 2017). Recreational use is viewed as purposeless, in that that is not generally viewed to serve a medical or therapeutic function (Bøhling, 2017). Sessa (2014) argues that the second wave of psychedelics was tightly wound with political and cultural counter-culture movements, and the present wave is viewed as being a polarized swing from the past movement, which has resulted in leaving out a core group of users.

Further, although psychedelics may have important applications for the treatment of mental health conditions, completely re-conceptualizing psychedelics as a therapy and ignoring the important role of pleasure may have negative impacts on a wide-range of substance users. The majority of psychedelic users are non-problematic, in that they are able to sensibly incorporate their substance use practices within their lives (Móró et al., 2011). The lack of engagement with magic mushroom users may lead to problematic or irrelevant applications of research findings. Establishing a dominant perspective that does not engage with the majority of substance users fails to reflect to diversity of experiences and users and will lead to inappropriate policy practices and research direction (Parker, 1997).

This thesis acts as a corrective to the dominant discourses and perspectives prevalent within psychedelic research. Taking a contextual approach, this thesis embeds magic mushroom use within the social and cultural influences. In the following chapters I

present research that speaks to the diversity of substance use experiences and demonstrates the important role that magic mushrooms can occupy outside of the clinical setting.

Chapter 3: Methodology and Methods

This chapter outlines the methodology and methods of my thesis. I begin by describing my research approach, which summarizes the philosophical worldview, research design and the methodology of my thesis. I outline my philosophical worldview as I am of the position that one's philosophical positioning critically influences research questions, design and methodological approach (Burrell & Morgan, 1979).

Following this, I describe my research methods. I use mixed methods research, which is "mixing or combining quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (R. B. Johnson & Onwuegbuzie, 2004, p. 17. Specifically, I use an explanatory sequential mixed-methods approach (described below in detail, *Research Design*). Padgett (2012) argues that mixed methods are appropriate when researchers want to maximize understanding of an issue or concept, as mixed methods research enhances validity, and can lead to a more comprehensive conception of the research issue. As per Creswell (2013, 2014), the methods section of this chapter is divided into Quantitative and Qualitative sub-sections.

Research Approach

Philosophical Worldview

Here, the term "worldview" means "a basic set of beliefs that guide action" (Guba, 1990, p. 17). My philosophical worldview is pragmatism. The intention of this section is not to delve deep within the pragmatism debate (as that is a thesis within itself), but rather, to describe the core characteristics of pragmatism and to explain how a pragmatism worldview has shaped my research approach. There are multiple iterations of

pragmatism developed and dissected (e.g., Biesta, 2015; Cherryholmes, 1992; D.L. Morgan, 2007; Rorty, 1982). At its core, pragmatism believes "the meaning or instrumental or provisional truth of a concept, expression, or practice is determined by the experiences or consequences following from belief or use of the concept or practice" (Sullivan, 2009, p.398). Pragmatist knowledge, according to Biesta (2015), is gained "through the combination of action and reflection" (p.23) in where the knowledge does not exist as an "isolated entity" but instead it is acquired and influenced through relationships, constructions, and context (D.L. Morgan, 2007, 2014). Knowledge, or truth, are "warranted beliefs," produced when values and evidence confirm one another (Tashakkori & Teddlie, 2010, p.87). As our values change, so does our construction of knowledge and truth.

Johnson and Onwuegbuzie (2004), leading pragmatism scholars, developed 22 tenants of pragmatism, based on the works of the three classical pragmatist philosophers and logicians; Charles Sanders Peirce, William James, and John Dewey. For the purposes of this thesis, I selected the tenants which most prominently shape my research: (1) knowledge is both constructed and empirical; (2) rejection of dualisms (i.e., facts vs. values); (3) belief that reality is constructed by human experience and human-environment interaction; (4) there are multiple mechanisms to discovering knowledge; (5) preference of action over philosophy and; (6) endorsement of practical theory. Within my thesis I apply these tenants, recognizing that knowledge is constructed by how actors interpret and negotiate their individual positions and system-level forces (Berger & Luckmann, 1996). This position is supported by my use of the *normalization thesis*, which situates substance use within the social and cultural context and argues that

meanings attached to substance use are produced through individual- and system-level negotiations with the bounded context of the substance user (Measham & Shiner, 2009). Further, I apply the pragmatism tenants by using a mixed-methods design, utilizing multiple forms of inquiry to understand my research issue.

In its essence, pragmatism is application focused: rather than methods guiding research, pragmatists affirm that the research problem and context must dictate methods, and a combination of approaches is most appropriate to develop a comprehensive understanding of the research issue (Cherryholmes, 1982; Patton, 2002; Rossman & Wilson, 1985). Mixed methods, mixed methodology research and pragmatism are connected (see: Creswell, 2014; D.L. Morgan, 2007, 2014; Tashakkori & Teddlie, 2010) as the philosophy of pragmatism dictates that a pluralist approach offers the best opportunity for thorough understandings of research issues. Below, I further explain my mixed method approach.

Research Design

My mixed method approach uses qualitative and quantitative research methodologies and methods. Mixed-methods use multiple forms of inquiry and analysis to gain a comprehensive and unrestricted sense of the research problem (R.B. Johnson & Onwuegbuzie, 2004; R.B. Johnson & Turner, 2003). Within the context of my research on recreational magic mushroom use, the methods followed the question. As I have established, little is known about recreational magic mushroom use; and using both qualitative and quantitative approaches facilitates a multidimensional understanding of recreational magic mushroom use.

Informed by Creswell (2014) this research takes an explanatory sequential mixed methods design (*Figure 3).* This is characterized by collecting and analysing quantitative data first, then collecting and analysing qualitative data (see: Tashakkori & Teddlie, 1998). Qualitative data provides the context, experience and depth to the quantitative statistical results (Creswell, 2013; Ivankova, Creswell & Stick, 2006).

Figure 3: Explanatory sequential mixed-methods research design

Figure 3*: Explanatory sequential mixed-methods research design. First, quantitative data is collected and analyzed. Then, qualitative data is collected and analyzed. Phases of research are combined during the integration phase. Informed by Creswell, 2014.*

There are three concepts that a researcher needs to address in explanatory sequential mixed methods design: the sequence, priority, and integration of methods. Regarding sequence, I chose to first analyse quantitative data, and then collect and analyse qualitative data. This sequence was largely driven by circumstance but is congruent with my research goals and my pragmatism worldview in that it is the most appropriate decision for my research questions and context. The quantitative data (*described in further detail below*, *Methods: Quantitative*) was collected prior to the beginning of this research project. Preliminary analyses of quantitative data demonstrated magic mushroom use rates and behaviors that could not be explained by referencing the substance use literature. Further analyses of quantitative data generated a group level

depiction of magic mushroom use within the Victoria recreational substance user population. As a researcher, I found the quantitative analysis created a strong foundation to understand the breadth of magic mushroom use that was occurring within Victoria, which helped guide the qualitative research process.

In terms of priority, or what phase of research is given more weight, I chose to prioritize the qualitative and quantitative phases of research equally. Generally, this is not the common decision within explanatory sequential mixed methods designs (usually quantitative is prioritized) but is acceptable depending on the study goals and scope of research instruments (D.L. Morgan, 2007). As my study goals were to understand patterns and behaviors of recreational magic mushroom use within Victoria, it is appropriate to use both methods available to me to generate a comprehensive representation of my research problem. In addition, there is not a body of recreational psychedelic research on where to ground methodological decisions. An equal-priority mixed-method design is suitable within my research context, as it is the comprehensive and conservative choice.

For integration, or the mixing of qualitative and quantitative methods, I chose to connect between phases and integrate in the discussion stage as outlined by Ivankova et al. (2006). By connect, I refer to the results of the first quantitative analysis being used to guide data collection in the second phase of qualitative analysis. The quantitative phase informed qualitative data collection tools. I fully integrate phases of my study in *Chapter 4: Discussion and Conclusion* through the *integration through narrative weaving* approach, where I discuss the quantitative and qualitative results together in a single report, on a concept-by-concept basis (Fetters, Curry, & Creswell, 2013). As per Fetters,

Curry and Creswell, there are three outcomes when integrating qualitative and quantitative data. First, there can be *confirmation,* when the results of qualitative and quantitative reseach confirm one another. *Expansion* occurs when results diverge but expand on the research issue through providing information on different or complementary aspects of the reseach issue. Fetters, Curry and Creswell explain that this can occur, for example when, "quantitative data may speak to the strength of associations while qualitative data may speak to the nature of those associations" (p.2143). Lastly, integration can result in *discordance* where the qualitative and quantitative data are contradictory, or incongruous. This can be addressed in different ways, generally through gathering additional data or explaining the contradictions through established theory. Detailed qualitative and quantitative methods analytic strategies are described in subsections below. For a full visual depiction of my research design and process, see *Figure 4* (*page 67)*.

Methods

In this section I describe the quantitative and qualitative methods used within this thesis. The quantitative and qualitative sections are divided and summarize the data collection and data analysis methods used.

Quantitative

The quantitative phase of my thesis draws data from CISUR's *Canadian Recreational Drug Use Survey* (CRDUS). This survey is a component of AOD. AOD is a province-wide epidemiological monitoring study that collects information on behavior

and patterns of alcohol and substance use (CISUR, 2015).[13] The University of Victoria (UVic) Human Research Ethics Board (HREB) approved CISUR's AOD project, and I was granted approval from the UVic HREB to conduct anonymized secondary analysis of the data (*Appendix A, ethics approval # 17-146*).

For my quantitative research, I use data collected from the *high-risk population* component of the CRDUS. This study monitors the patterns and trends in alcohol and substance use among street-involved adults, street-involved youth, and people who use drugs recreationally (Duff et al., 2009; Vallance, Roth, Thompson, Chow, & Martin, 2016). I examined data from people who use substances recreationally in Victoria, BC, and analyzed data collected between 2008-2016. AOD data are collected in a wave design, with data collection occurring twice a year. The AOD dataset is composed of independent samples, and thus this study is a repeated cross-sectional over time.

Data Collection

Quantitative Instrument

The AOD study collects data through a structured survey. The survey is conducted by trained research assistant (RA) interviewers through face-to-face interviews. I have been a volunteer RA on this project since 2015. The survey questionnaire asks participants about their drug use, and the availability, price, perceptions of drug purity, harms, and benefits of individual substances. Participants are asked about nine substances specifically: ecstasy, cocaine, crack, crystal meth, LSD, heroin, magic mushrooms, GHB, and ketamine (CISUR, 2015; Duff et al., 2009).

[13] AOD is expansive. For a full list of sub-projects, see: https://www.uvic.ca/research/centres/cisur/

Participants also complete a demographic section, which collects information on basic demographic characteristics and participant's experience with harm reduction services and substance use treatment. I analysed data from the magic mushroom and demographic sections only (*Appendix B, Quantitative Instrument, Magic Mushroom Section; Appendix C, Quantitative Instrument, Demographic Section)*.

Participants and Recruitment

As per the CRDUS AOD project, recreational substance users are part of the high-risk study population. Study eligibility criteria meant participants were eligible if they: (1) have lived in the research site for previous six months; (2) used substances other than alcohol and tobacco at least once per month in the previous six months; and (3) were aged 19+ years old (CISUR, 2015). CRDUS uses three recruitment methods: (1) convenience, (2) purposive and (3) snowball recruitment (but with no more than 50% recruited through snowball sampling). The study uses 5 "seeds" or points of contact and recruits three participants maximum by each seed. It advertises through flyers and posters across tertiary education campuses (the University of Victoria and Camosun College) and other community boards and bus shelters (*Appendix D, Quantitative Recruitment Poster*). Calls for participation are also advertised through social media and online (CISUR, 2015; Vallance et al., 2016). Potential participants emailed, called or texted the contact information listed on recruitment materials. The study coordinator then screens potential participants for eligibility via email, phone call or text, and if eligible, the study coordinator schedules an interview between the participant and the interviewer. Interviews take place on the UVic campus, in a private location.

The participant is presented the consent form at the time of the interview and has the opportunity to ask the interviewer any questions (*Appendix E, Quantitative Consent Form)*. No participant names are attached to the participant's data. Instead, on the survey instrument a 6-digit ID code is assigned to each participant. Participants may complete the survey once a year. The survey takes approximately one hour to complete. Participants receive a $20 Canadian honorarium in cash.

Data Analysis

I analyzed data from 2008 – 2016. At the time of analysis, this was the most recently available data. Using SPSS (*IBM SPSS Statistics Version #21*), I performed several procedures to analyze changes in recreational magic mushroom use practices over time. Specifically, I examined four outcomes: (1) sociodemographic characteristics; (2) rates of use; (3) availability; and (4) knowledge. Descriptions of my analytic methods are presented below.

Sample

As participants are permitted to complete the survey once a year, I removed repeat participants from the sample, to mitigate duplicate responses to lifetime prevalence questions. I restricted the sample to ages 19 – 24. Within the recreational substance user sample, I generated three separate sub-samples: (1) participants who had used magic mushrooms at least once in their lifetime (Lifetime Users, LU); (2) participants who had used magic mushrooms at least once within the previous year (Past Year User, PYU) and; (3) participants who had never used magic mushrooms (Never Used, NU). I generated these sub-samples to make sociodemographic comparisons based on substance use

behaviors. A key feature of the *normalization thesis* is that for a substance to be normalized, a wide-range of people use the substance, and the substance is not attached to a specific sociodemographic group (Parker et al., 1998; 2002).

Sociodemographic Analysis

To determine sociodemographic characteristics of people who use magic mushrooms recreationally, I conducted descriptive statistics on each of the three sub-samples. I examined the following variables: age (continuous variable); self-identified gender (categorical variable: *male/female/transgender/other*); self-identified ethnicity (categorical variable: *white/other*) and; student status (categorical variable: *student/non-student*). Ethnicity was recoded as a dichotomous variable for sociodemographic analysis; overwhelmingly, participants identified as white, and the frequencies of other ethnicities were too low to make meaningful comparisons.

I conducted basic descriptive statistics, calculating the mean for continuous variables (age; SPSS procedure: Descriptive Statistics, Mean), and frequencies for categorical variables (gender, ethnicity, student status (SPSS procedure: Descriptive Statistics, Frequencies). I then developed a sociodemographic table to depict the results of analyses.

Sample comparisons

To determine if there are statistically significant sociodemographic differences the sub-samples, I conducted two separate sub-sample comparisons between: (1) LU and NU and; (2) PYU and LU who had not used magic mushrooms within the previous year. I conducted Independent Samples T-Tests (SPSS procedure: Analyze, Compare Means,

Independent Samples T-Test) for age (continuous variable), selecting age as the test variable and sub-sample population as the grouping variable. I conducted a Chi-Square analysis for gender, ethnicity, and student status (categorical variables; SPSS procedure: Analyze, Descriptive Statistics, Crosstabs). Within these comparisons, the dependent variables are sub-sample and the independent variables are gender, ethnicity and student status. Within the gender analysis, since the number of *transgender and other* was low, I treated these data as missing. Next, I created a table to present the results of analysis.

Rates of use

To determine use rates over the study period, I determined the prevalence of mushroom use in each year period, 2008 – 2016. I first recoded the data collection waves into years. I treated each year as an independent sample, since data were collected in a repeated cross-sectional format. I determined prevalence rates by year for: (1) lifetime use magic mushroom use and; (2) previous year magic mushroom use.

For lifetime use of magic mushrooms, participants answer the question: *Have you EVER used magic mushrooms in your lifetime?* Possible answers include: *Yes*, *No*, *Don't Know*, and *Refused*. As the purpose of this analysis is to determine prevalence of use, *Don't Know* and *Refused* were treated as missing within analysis. *Don't Know* is selected when the participant does not recall if they have ever used magic mushrooms. A Crosstabulations, using a Chi-Square test was used to examine the relationship between substance use and year (SPSS procedure: Analyze, Descriptive Statistics, Crosstabs). Within this analysis, year (categorical variable) was the dependent variable and lifetime use of magic mushrooms (categorical variable) was the independent variable. I created both a figure and table to present results.

Next, to determine the prevalence of magic mushroom use within the previous year, participants answer the question: *Have you used magic mushrooms within the PAST 12 MONTHS?* (in *Chapter 4: Results, 12 months* is reported as *year*). Possible answers include: *Yes, No*, and *Don't Know*. *Don't Know* was treated as missing, for the same reasons outlined in the above analysis. A Chi-square test was used to determine the relationship between year and magic mushroom use within the previous year (SPSS procedure: Analyze, Descriptive Statistics, Crosstabs). Year (categorical variable) was the dependent variable and magic mushroom use within the previous 12 months (categorical variable) was the independent variable.

Availability

To determine rates of availability, I assessed the following variable: *How easy is it to get magic mushrooms at the moment (availability)?* with possible answers of *very easy - score within 90 minutes; easy - score within a day*; *difficult - score in more than one day*; *very difficult - could not get this drug* and; *don't know*. Due to low response rates, I recoded this variable to be dichotomous. I combined *very easy* and *easy* responses as one *easy* value; and *difficult* and *very difficult* responses as a *difficult* value. *Don't know* was treated as missing. I generated the overall rate of availability between 2008 – 2016 with a frequency procedure (SPSS procedure: Descriptive Statistics, Frequencies) and I conducted a Chi-square analysis (SPSS procedure: Analyze, Descriptive Statistics, Crosstabs) to determine if there is a statistically significant relationship between year (categorical, dependent variable) and availability (categorical, independent variable). I graphed results and generated a table displaying response rates.

Knowledge

Participants self-rate their levels of magic mushroom knowledge, answering: *How would you rate your knowledge of the price and availability of magic mushrooms in your region?* possible answers include: *I know nothing about it*; *I have a little bit of knowledge*; *I know a lot* and; *don't know*. I generated the overall rate of knowledge between 2008 – 2016 with a frequency procedure (SPSS procedure: Descriptive Statistics, Frequencies). To determine the statistical relationship between levels of knowledge and year, I used a Crosstabulations and conducted a Chi-Square test (SPSS procedure: Analyze, Descriptive Statistics, Crosstabs). For this procedure, the Independent variable is year (categorical variable) and the dependent variable is self-rated knowledge (categorical variable). Results are graphed and presented in a table.

Qualitative

In February and March 2018, I planned to conduct 20 face-to-face semi-structured interviews with recreational magic mushroom users. This phase of research was approved by the UVic HREB (*Appendix A, ethics # 17-146).*

Data Collection

Qualitative Instrument

I conducted semi-structured interview for qualitative data collection. Semi-structured interviews are flexible and allow for participant to express themselves within their own terms and language (Kvale & Brinkmann, 2009). I developed and refined my semi-structured interview instrument with reference to the results from quantitative analysis and the *normalization thesis* (Parker et al., 1998; *Appendix F: Qualitative*

Instrument). The quantitative phase provided information on changing rates of use, availability, knowledge and sociodemographic characteristics. With reference to quantitative results, I focused on contextualizing patterns and practices of magic mushroom use within the current social and cultural context. As outlined in *Chapter 1*, the *normalization thesis* is composed of six dimensions: access/availability; drug-trying rates; high levels of knowledge; rates of regular use; social accommodation and cultural acceptance I incorporated these six dimensions within the qualitative interview instrument. Although normalization researchers do not find all dimensions of the normalization to be relevant to their study populations (L. Williams, 2016), I chose to ask design an instrument that incorporated all *normalization thesis* dimensions, as there was not an established literature base to guide my direction.

As interviews were semi-structured, all participants were asked the same questions, with minor variations. I allowed for participants to guide the conversation, and asked follow-up questions about different concepts and experiences they shared. All interviews were audio-recorded and later transcribed verbatim. In keeping with Ribbens (1989) I also kept notes on non-verbal cues and body language.

To begin the interview, I showed participants 2 figures which depicted magic mushrooms use (*Appendix F, Qualitative Instrument*). Data in these figures were derived from the quantitative analysis. The first figure showed magic mushroom use within the previous 30 days. This figure included other substances used, which provided the opportunity for the participant to discuss their magic mushroom use in relation with other substances. The second figure showed magic mushroom use lifetime rates, by year. I

asked participants to explain what they thought of these rates, and if the figures had any relation to their own experiences.

Next, in the main body of the interview, I began by asking participants about the most recent time they had used magic mushrooms, asking them to walk me through their planning period (if applicable), the magic mushroom experience, and any effects. In addition, I asked participants to describe their practices and contexts of use are (e.g. micro-doing, going on "trips," using at parties/raves). In particular, I was interested in context of use, motivations for use and planning process. Participants told me what benefits and harms they associated with magic mushrooms. I also asked about perceived benefits, risks, their social circles, how many of their friends use mushrooms, if they feel judged by non-using friends, and what they think about group or subculture affiliations on magic mushrooms. I completed the main interview by asking the participants if there was anything they were hoping to talk about or anything they thought I had missed, in an effort to capture relevant or meaningful information (Brod, Tesler & Christensen, 2009). I concluded with a brief demographic questionnaire, asking about age, gender, occupation and how long they had been living in Victoria.

Participants

I interviewed 10 self-identified males and 10 self-identified female participants. To maintain continuity and comparability with the quantitative phase, study eligibility requirements were: (1) have lived in the research site (Victoria) for previous six months; (2) be aged 19 – 24 years; and (3) have used magic mushrooms at least once within the previous 3 months.

I restricted the age range of the qualitative sample due the theoretical concepts of the Normalization Thesis, which focus on the emerging adulthood period (see *Chapter 2: Literature Review* for discussion). The substance use range time-frame was chosen in an attempt to minimize recall bias and to ensure that the data collected was relevant to the current social and cultural context. As the qualitative interviews ask in-depth questions about personal experiences with magic mushrooms three months was chosen as a reasonable window to capture magic mushroom users and reduce recall bias. In addition, as the *normalization thesis* is concerned with social and cultural forces, I wanted to develop a more comprehensive understanding about the current role and meanings attached to magic mushrooms and magic mushroom use.

Lastly, recruiting 10 self-identified males and 10 self-identified males was to allow for gender-sensitive or gender-based analysis, particularly when examining magic mushroom attitudes, behaviors and practices of use. Gender-based and gender-sensitive approaches are a significant field of study within recreational substance use research but have not yet been applied to magic mushroom research (see: Eitle & Eitle, 2015; Pelissier & Jones, 2005; Rødner Sznitman, 2007; Tuchman, 2010). Specific to the *normalization thesis* gender has been significantly associated with recreational substance use, showing that self-identified males and females experience recreational substance use through a different set of social and cultural experiences, which can impact substance use behaviors (e.g., Measham, 2002; Measham, Williams, & Aldridge, 2011; O'Gorman, 2016).

Recruitment and Consent Process

I recruited participants using convenience and purposive sampling. To recruit participants, I placed posters on the UVic Campus. As per UVic poster guidelines,

recruitment posters were displayed for a three-week period in January and February 2018 (*Appendix G, Qualitative Recruitment Poster)*. In addition, CISUR advertised my recruitment poster on their Facebook page *(Appendix H, Figure 3, Qualitative Recruitment Facebook Post).* When recruitment was satisfied, CISUR amended the original Facebook post to indicate that no new participants were needed.

Potential participants were directed to contact the study email, advertised on the recruitment poster. In less than 24 hours into the recruitment process, I received over 300 emails from potential participants. The recruitment poster generated an unexpected amount of attention, leading to media requests and subsequent interviews (CBC 2018; Wilson, 2018). I continue to receive emails weekly over 4 months since the poster was originally advertised. These emails range in subject-matter, with some being interested in participating in the study, and others inquiring about study progress or wanting to share their personal experiences with someone who has knowledge about psychedelic research. I respond by thanking the interested parties for their email and letting them know what stage of research I am currently in. If the email sender shares a personal experience, I acknowledge and thank them for sharing.

I screened participants through email and recruited the first 10 male and 10 female participants that met eligibility requirements. I sent participants the study Consent form (*Appendix I, Qualitative Consent Form*) in advance of the interview and encouraged participants to contact me with any questions. At the time of the interview, the participants and I went through the consent form together, and the participant was given the opportunity to ask any questions before the interview began. Interviews took place on the UVic campus, at a pre-scheduled time. All participants were given an honorarium of

$20 Canadian cash, and a referral card for counselling services in the area. Interviews ranged from 25 minutes to 53 minutes, with a mean interview length of 35 minutes.

Interview Environment

As I conducted all 20 interviews, I was in a position where I could establish a consistent environment across all interviews. Substance use can be a difficult topic for some people to discuss. I made an effort to build a comfortable and engaging environment for participants through rapport and trust. Creswell (2015) suggests creating a comfortable interview environment may encourage participants to share more information, which improves the quality and depth of data. In addition, social desirability bias is a concern within substance use research but can be mitigated by constructing a non-judgemental interview atmosphere (Spector, 2004). I began each interview by describing the purpose for the study, and expressing appreciation for the participant's involvement (Alsaawi, 2014). I started with non-personal questions to engage in tangential conversation surrounding the topic – but not personal involvement on the topic (DiCicco-Bloom & Crabtree, 2006). The questions were open-ended and broad. As participants became more comfortable, and I felt as though we were developing a rapport, I expanded to more in-depth questions.

Informed by Alvesson (2003), I attempted to build trust and authenticity by reducing the hierarchical researcher-participant relationship. To do this, I created a "two-way" process during interviews, giving small amounts of information about myself as I asked the participant to share their experiences (Hannabuss, 1996). For example, if appropriate and relevant to the conversation I would share information about where I grew up or my experiences at UVic. In addition, I am aware of the role that my own

physical appearance and context has on the development of rapport and overall interview environment. At the time of interviews, I was 24. Although participants were informed that the research project was for a Masters of Science thesis, (the consent form clearly stated the research was for the partial fulfilment of a student thesis program), many participants commented that they were surprised by my young age. My interactions felt more peer-based, as my participants and I are of similar ages. I did not dress formally for the interviews - I looked like a student. I feel that my appearance, in part, contributed to a more comfortable and approachable interview environment.

Data Analysis

To analyze the interview transcripts, I used thematic analysis methods, informed by Braun and Clarke (2006). Thematic analysis is "a method for identifying, analyzing, and reporting patterns within qualitative data" (Clarke & Braun, 2017, p. 297). Thematic analysis is flexible, as it is not bound to a theoretical discipline or paradigm. Thematic analysis involves generating "codes" and "themes" within data. A code "capture[s] interesting features of the data (potentially) relevant to the research question," and are used as "building blocks" for themes (Clarke & Braun, 2017, pg. 297). A theme is a "pattern of meaning, underpinned by a central organizing concept – a shared core idea" (Clarke & Braun, 2017, p. 297). Braun and Clarke (2006) outline six recursive stages of thematic analysis: (1) familiarizing yourself with data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes and; (6) producing the report. In sub-sections below, I provide definitions and detailed descriptions of my actions for each phase of analysis.

A feature of thematic analysis is the active role the researcher plays as "the instrument for analysis" (Nowell et al., 2017, pg. 2). The researcher makes decisions about codes, themes and data contextualization, and with this, the researcher brings their own assumptions and lived experiences to these decisions (Braun & Clarke 2006; Nowell et al., 2017). To be transparent and credible in my decisions, I include mechanisms to ensure rigor and trustworthiness within the thematic qualitative analysis. Specifically, I follow Nowell et al.'s (2017) "Step by Step Approach for Conducting a Trustworthy Thematic Analysis." Nowell et al. (2017) draw on Lincoln and Guba's (1985; 1989) "trustworthiness" concepts of qualitative analysis criteria through operationalizing credibility, transferability, dependability, confirmability and reliability. Through each stage of thematic analysis, I operationalized one or more of the trustworthiness concepts. I strive to communicate my decisions to enable readers to clearly understand how my data were analyzed and what assumptions or experienced informed my analysis. My stages of thematic analysis and corresponding mechanisms of establishing trustworthiness are described in *Table 1*.

Phase 1: Familiarizing yourself with your data

This initial phase is meant to be immersive. As I conducted all interviews, I felt that I was entering this phase with a strong understanding of the dataset. In this phase, I read the interview transcriptions twice in an "active" way, meaning as critically read transcripts with coding and patterning at the forefront of my mind. During this phase I made notes on coding ideas, noticeable patterns and my own reflexive thoughts during the process. I have kept these records.

Table 1: Qualitative analytic phases of thematic analysis

PHASE	PROCESS	TRUSTWORTHINESS
(1) Familiarizing yourself with your data	Active repeated reading, note-taking of initial notes and coding ideas	Prolonged engagement with the data, documenting initial codes and themes, document reflexive thoughts, keep all records
(2) Generating initial codes	Systematically Coding entire data set, collating data relevant to each code	Reflexive journaling, use of a coding framework, audit trail of code generation, documentation of analytic decisions
(3) Searching for themes	Collating codes into themes, gathering data relevant to the themes	Diagramming to make sense of theme connections, notes on the development of hierarchies of concepts and themes
(4) Reviewing themes	Checking themes against the coded extracts and the entire data set, generating a thematic map	Test for referential adequacy by returning to raw data Themes and subthemes vetted by co-supervisor
(5) Defining and naming themes	Refining specifics of themes and developing clear names and definitions for each themes	Documentation of theme naming Theme names and definitions vetted by co-supervisors, themes and sub-themes table
(6) Producing the Report	Final Selection and analysis of data extracts, relating and grounding analysis into the relevant research questions and literature, producing scholarly report	Describing process of coding and analysis in sufficient detail, thick descriptions in context, description of audit trail, report on reasons for theoretical, methodological and analytical choices

Phase 2: Generating Initial Codes

In this phase, I reviewed the entire data set and produced key codes. I used a semantic approach, meaning I looked for surface codes and based my coding on what the participant said, rather than looking for underlying codes (Braun & Clarke, 2006). I used NVivo (*Version #11, QSR Software*). I approached coding theoretically (see: Boyatzis, 1998). This means my analytic process is driven by my research questions, in that I am coding for the specific purpose of my research question rather than allowing my research question to develop through coding (i.e., inductive). I followed Braun and Clarke's (2006) guidance, in where I coded for many potential themes, I kept surrounding data attached to code (to maintain context of codes), and kept in mind that this is an iterative, recursive process.

To maintain trustworthiness, I approached coding systematically, through the use of a coding framework. Informed by Nowell et al. (2017) and Fereday and Muir-Cochrane (2006) I developed a codebook, in which I included codes, definitions of codes and extract texts. All changes made within my analytic approach were documented in both researcher notes and within my codebook. I continued my practice of reflexive journaling, which expands on my decision-making processes and assumptions.

In my first coding cycle, I produced 92 codes. In my second coding cycle I first completely re-read the transcripts and corresponding first cycle codes, recording my thoughts and impressions within my reflexive journal. I then re-analyzed the transcripts and codes and produced 68 codes. I found that some codes I developed were synonymous, or some segments of text that I had attached multiple codes to were more suitable to a smaller number of codes. I re-examined my codes multiple times during the analytic process, concluding with 63 codes.

Phase 3: Searching for Themes

Within this phase, the researcher sorts and analyses the Phase 2 codes into different combinations for the development of a theme. This phase involves collating coded data extracts within relevant themes (Braun & Clarke, 2006). This phase connects codes, analyzes relationships between themes and examines levels of themes. I ended this phase with "candidate themes" and their associated extract data. For trustworthiness, I diagrammed theme connections and I kept detailed notes on my theme development (Nowell et al., 2017). I represented themes as parent nodes in NVivo and subthemes as child nodes. In addition, I continued my practice of keeping detailed notes in my codebook and reflexive journaling. As a novice researcher, I found this phase to be the

most consuming. In my first candidate theme cycle, I synthesized 66 codes into 22 candidate themes. I revisited Phase 2 coding multiple times to reflect on developed codes. I revisited this phase multiple times, concluding with 15 candidate themes.

Phase 4: Reviewing Themes

Phase 4 includes two levels of review. First, I reviewed all the collated extracts for each candidate theme and consider whether they appear to form a coherent pattern. Once satisfied with the candidate themes, I moved to level 2 of review. Level 2 involves considering the validity of individual themes in relation to the entire data set, and if the candidate themes reflect meanings in the data set. Braun and Clarke (2006) note that the themes should be distinct, yet they should also be cohesive. I moved to the next stage when I was satisfied with my themes. To ensure trustworthiness, I returned to raw data to check for referential adequacy (Nowell et al., 2017) and I vetted my themes and sub-themes with my co-supervisors (ER and NL) and re-visited previous phases. I conclude with 4 major themes and 12 sub-themes.

Phase 5: Defining and naming themes

Braun and Clarke (2006) characterize this stage by "defining and refining" themes. By this, I examined each developed theme and named the theme by its defining characteristic. From here, I conducted and wrote a detailed analysis of each theme, and how each theme interacted with one another in the broader story of my data. I documented my decision-making process in my reflexive journal, and vetted names and definitions with my co-supervisor. I define each theme in *Chapter 4: Results.*

Phase 6: Producing the report

The final phase of thematic analysis is to "tell the complicated story of your data in a way which convinces the reader of the merit and validity of your analysis" (Braun & Clarke, 2006, p.93). For trustworthiness, I have described my iterative process within this chapter (Nowell et al., 2017). In *Chapter 4: Results* and *Chapter 5: Summary and Discussion* I present and engage with the results of my analysis.

Figure 4: **Visual model for mixed methods sequential explanatory design procedures**

PHASE	PROCEDURE	PRODUCT
	CISUR's CRDUS AOD longitudinal cross-sectional questionnaire (n = 613)	Numeric data
	Statistical analyses using SPSS software v.21 (Frequencies, Crosstabulations, Comaring Means)	Descriptive statistics, Independent Samples T-Test,Chi-Square analysis
	Developing interview questions	Qualitative Instrument
	Individual semi-structured interviews (n=20)	Text data
	Coding and thematic analysis	Codes and themes
	Interpretation of quantitative and qualitative results	Discussion, Implications of research, suggestions for future research

Figure 4: Visual Model for Mixed Methods Sequential Explanatory Design Procedures*. This table is informed by Ivankova, Creswell and Stick's (2006) "Ten Rules for Drawing Visual Models in Mixed-Methods Design." Providing a visual model of research design is considered best practice in mixed methods research (see: Creswell, 2013, 2014; Morse, 1991).*

Chapter 4: Results

In this chapter I describe the results of my analyses. As per Creswell (2014), results are presented sequentially, beginning with quantitative and followed by qualitative. Within the quantitative section, I present the three sub-sample's (LU, PYU and NU) sociodemographic characteristics and the results of sub-sample sociodemographic comparisons. I describe the rates of magic mushroom use, availability of magic mushrooms, and self-rated magic mushroom knowledge levels. In the qualitative section I first describe my personal experience of the interview process. I then present the qualitative sample's sociodemographic characteristics and interview results by theme and sub-theme.

Quantitative

Within the entire recreational substance using cohort there were 1, 310 participants. After restricting the sample to 19 – 24 and removing duplicate cases, there were 613 participants. Within the entire recreational substance use sample, ages 19-24, 558 of 613 (90.9%) participants had used magic mushrooms at least once in their lifetime.

Sub-Sample Sociodemographic characteristics

The first sub-sample I examined were participants who had used magic mushroom at least once in their life (LTU; *n*=558*)*. The mean age of participants who had used magic mushrooms at least once within their lifetime was 21.1 (standard deviation [SD] ± 1.66). Gender was self-identified, with 257 (46.1%) female, 299 (53.6%) male, 1 (0.2%) transgender and 1 (0.2%) other. Within the ethnicity variable, 30 cases were

missing, reducing the sample to 528 participants. Within this reduced ethnicity sub-sample, 454 (86.0%) self-identified as white and 74 (14.0%) identified as other. The majority of participants (69.7%) were enrolled full-time in tertiary education or other schooling at the time of the interview.

The second sub-sample analyzed was those who had used magic mushrooms at least once within previous year prior to the interview (PYU). In total, this sub-sample was composed of 451 participants, meaning that within the LTU sub-sample (*n*=558), 80.8% had also used magic mushrooms within the previous year. The mean age of participants who used magic mushroom at least once within the previous year was 21 (SD ± 1.64). Within the sample, 197 (43.7%) identified as female, 253 (56.1%) identified as male and 1 (0.2%) identified as transgender. The ethnicity variable had 22 missing cases within this sub-sample, reducing the analytic sample to 429. Within this sub-sample, 374 (87.2%) identified as white and 55 (12.8%) identified as other. Again, the majority (70.1%) of participants attended a university, college or other schooling fulltime at the time of the interview.

Within the PYU sub-sample, 173 participants (38.4%) used magic mushrooms at least once within the previous 30 days. Most frequently, participants used magic mushrooms on 1 day out of the previous 30 days, with 122 (70.5%) of those who had used in the previous 30 days indicating they had used on one day. Some results were suggestive of micro-dosing: 4 participants (2.4%) reported using between 7-10 of the previous 30 days, which may suggest an introductory micro-dosing protocol. A single participant (0.6%) reported using magic mushrooms on 20 of the previous 30 days.

Lastly, I conducted descriptive sample characteristics for recreational substance users, ages 19 – 24, who had never used magic mushrooms (NU). In total, this sub-sample contained 55 participants. The mean age of participants was 20.8, (SD ±1.57). The sample was composed of 41 (74.5%) females and 12 (25.5%) males. Similar to the previous sub-samples ethnicities, 42 (77.8%) of participants identified as white and 12 (22.2%) identified as other. The majority (80%) attended university on a full-time basis. Descriptive characteristics for the three sub-samples are depicted in *Table 2.*

Table 2: Sociodemographic characteristics

Sample		**Lifetime magic mushroom use (LTU)**	**Used within previous year (PYU)**	**Never used magic mushrooms (NU)**
		n =558 (%)	***n = 451(%)***	***n= 55 (%)***
Variable				
Gender				
	Male	299 (53.6)	253 (56.1)	41 (74.5)
	Female	257 (46.1)	197 (43.7)	14 (25.5)
	Transgender and Other	2 (0.4)	1 (0.2)	--
Age				
	Mean (± SD)	21.1 (±1.66)	21.0 (±1.64)	20.8 (±1.57)
	19 – 20	226 (40.5)	193 (42.8)	27 (49.1)
	21 –22	199 (35.7)	164 (36.4)	18 (32.7)
	23 – 24	133 (23.9)	94 (20.9)	10 (18.2)
Ethnicity[†]				
	White	454 (81.4)	374 (82.9)	42 (76.4)
	Other	74 (13.3)	55 (12.2)	12 (21.8)
Student Status (current)[a]				
	University	330 (59.1)	272 (60.3)	44 (80)
	College	54 (9.7)	42 (9.3)	5 (9.1)
	Other School	4 (0.7)	1 (0.2)	--
	No	169 (30.3)	135 (29.9)	6 (10.0)

[a] denotes one missing case for ever used sample and used within previous 12 months sample
[†] within the ethnicity variable, there are 30 missing cases within LYU sub-sample, 22 within PYU sub-sample and 1 within NU sub-sample

Sociodemographic Comparisons

Within the first sub-sample comparison between PYU and participants who had not used within the previous year, Chi-square analysis results indicated there was a significant association between gender and use within the previous year, $\chi^2 = 5.173$, p-value = 0.023, degrees of freedom (df) = 1, with males being more likely to use magic mushrooms than females. There were no statistically significant associations between age, ethnicity and student status with magic mushroom use within the previous 12 months (all p>0.05). All results of analyses are presented in *Table 3.*

Table 3: Sample comparisons of previous 12-month magic mushroom use

Sample		**Yes, Used magic mushrooms within previous year (PYU) *n*= 450 (%)†**	**No, had not used magic mushrooms within previous year *n*= 106 (%)†**		
Variable				Independent T-Test (p-value)[a]	Chi-square (p-values)
Age (± SD)		21.1 (±1.64)	21.6 (±1.68)	(0.326)	
Gender [b]					5.173 (0.023)*
	Male	253 (84.6)	46 (15.4)		
	Female	197 (76.7)	60 (23.3)		
Ethnicity [b,c]					2.819 (0.129)
	White	373 (82.5)	79 (17.5)		
	Other	55 (74.3)	19 (25.7)		
Student Status (current)[d]					9.242 (0.26)
	University	272 (82.7)	57 (17)		
	College	42 (77.8)	12 (22.2)		
	School	1 (25)	3 (75)		
	No	134 (79.8)	34 (20.2)		

† *All percentages are calculated at the dependent variable level*
[a] *Equal Variances Assumed*
[b] *Continuity Correction test used for reporting P-value, calculated in a 2x2 table*
[c] *30 missing cases, total sample 526*
[d] *One missing case, total sample 555*
***** *Statistically Significant, P<0.05*

The second sub-sample comparison examined LTU and NU. Results of Chi-square analysis indicted that gender was significantly associated with lifetime magic mushroom use, $\chi^2 = 14.955$, p-value <0.001, df = 1, with males being more likely to use magic mushrooms than females. Age, ethnicity and student status were not significantly associated with lifetime magic mushroom use (all p>0.05). Results are presented in *Table 4.* Within all sub-sample comparisons, gender was the only statistically significant variable.

Table 4: Sample comparisons of lifetime magic mushroom use

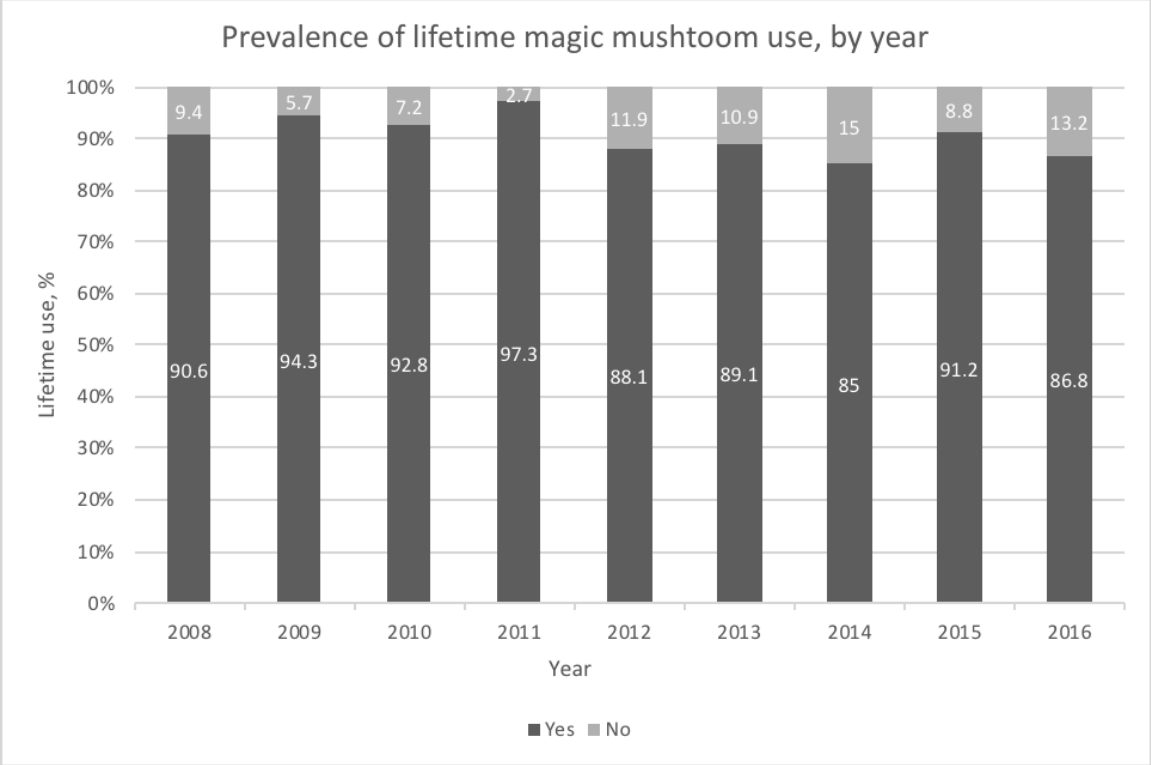
Sample		**Yes, Used magic mushrooms (LTU) N= 556 (%)**	**No, never used magic mushrooms (NU) N= 55 (%)**		
Variable				Independent T-Test (p-value)$_a$	Chi-square (p-values)
Age (± SD)		21.1 (±1.67)	20.76 (±1.57)	(0.292)	
Gender $_{b, c}$					14.955 (<0.001)*
	Male	253 (84.6)	46 (15.4)		
	Female	197 (76.7)	60 (23.3)		
Ethnicity $_{c,d}$					1.973 (0.16)
	White	452 (91.5)	42 (8.5)		
	Other	74 (86)	12 (14)		
Student Status (current)$_d$					10.507 (0.15)
	University	329 (88.2)	44 (11.8)		
	College	54 (91.5)	5 (9.5)		
	School	4 (100)	-		
	No	168 (96.6)	6 (3.4)		

$_a$ Equal Variances Assumed
$_b$ One missing case, total sample 611
$_c$ Continuity Correction test used for reporting P-value, calculated in a 2x2 table.
D 32 missing cases, total sample 580
$_d$ Two missing cases, total sample 610
** Statistically Significant, P<0.05*

Rates of Magic Mushroom Use

Results indicate show there was not a statistically significant association between year and lifetime use, with Pearson Chi-square analysis results indicating $\chi^2 = 9.99$, p-value =0.27, df = 8. There was not a linear trend between lifetime magic mushroom use and year *Appendix J, Table A1, Rates by Year*). The highest reported prevalence rate was in 2011, with 71 of 73 participants (97.3%) reporting lifetime magic mushroom use. The lowest reported prevalence rate occurred in 2014, with 51 of 60 participants (85.0%) reporting they had used magic mushrooms at least once within their lifetime. *Figure 5* depicts lifetime use of magic mushrooms by year in graph form.

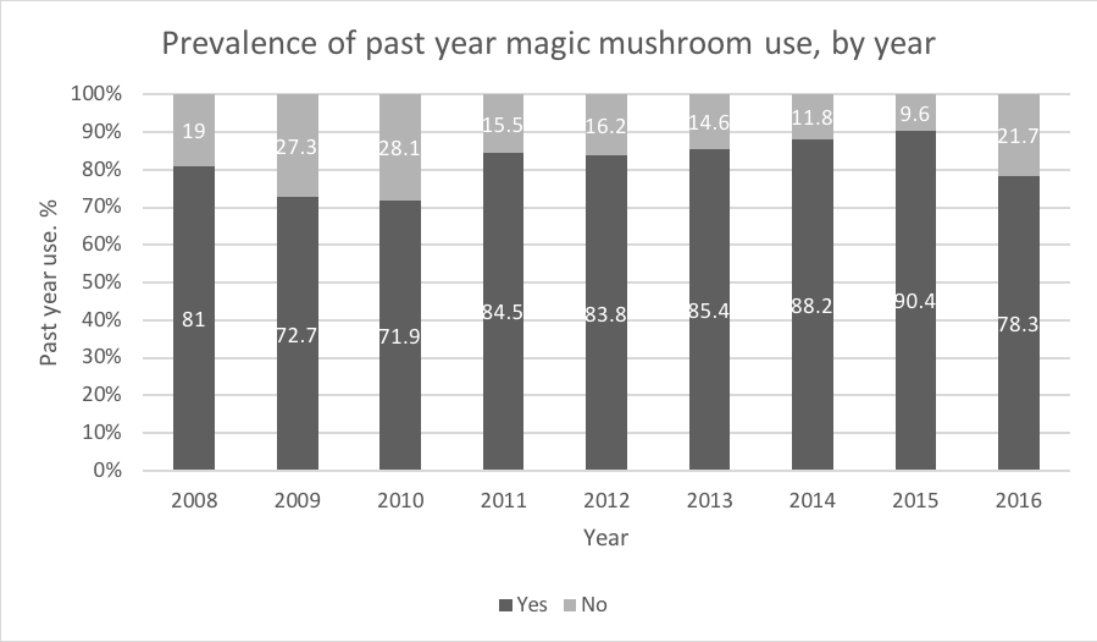
Figure 5: Prevalence of lifetime magic mushroom use, by year



Similarly, there was not a statistically significant association between year and use of magic mushrooms within the previous 12 months of the interview, with Pearson

Chi-square analysis results indicating $\chi^2 = 13.524$, p-value = 0.095, df = 8. Rates of use were high, with no rates of use in the previous 12 months being below 71% (*Appendix K, Table A2, Rates by Year)*. See *Figure 6* for graph of rates of previous 12-month magic mushroom use by year.

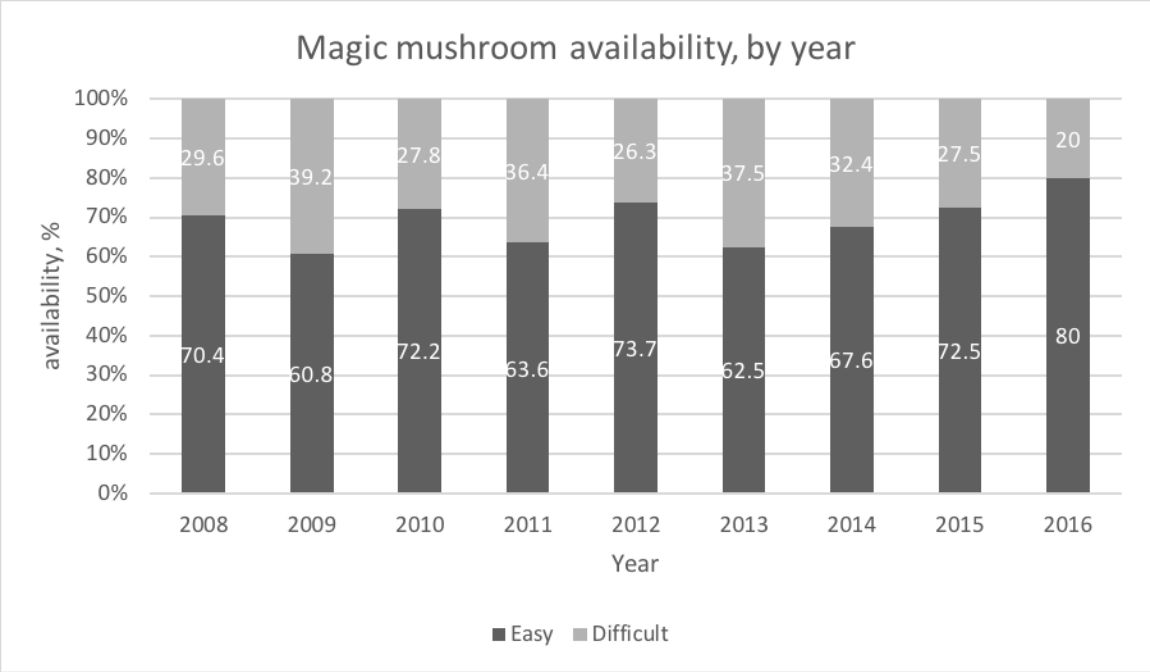
Figure 6: Prevalence of previous 12-month magic mushroom use, by year



Availability

Of the 319 participants who answered this question, 219 (68.7%) indicated that it was *easy* to access magic mushrooms, and 100 (31.3%) indicated that it was *difficult*. There are no statistically significant association over the years, with Chi-Square statistical $\chi^2 = 4.888$, P-value = 0.769, df = 8. Frequency distribution results of availability by year are depicted on *Figure 7 (Appendix L, Table A3, Frequency distribution of magic mushroom availability by year).*

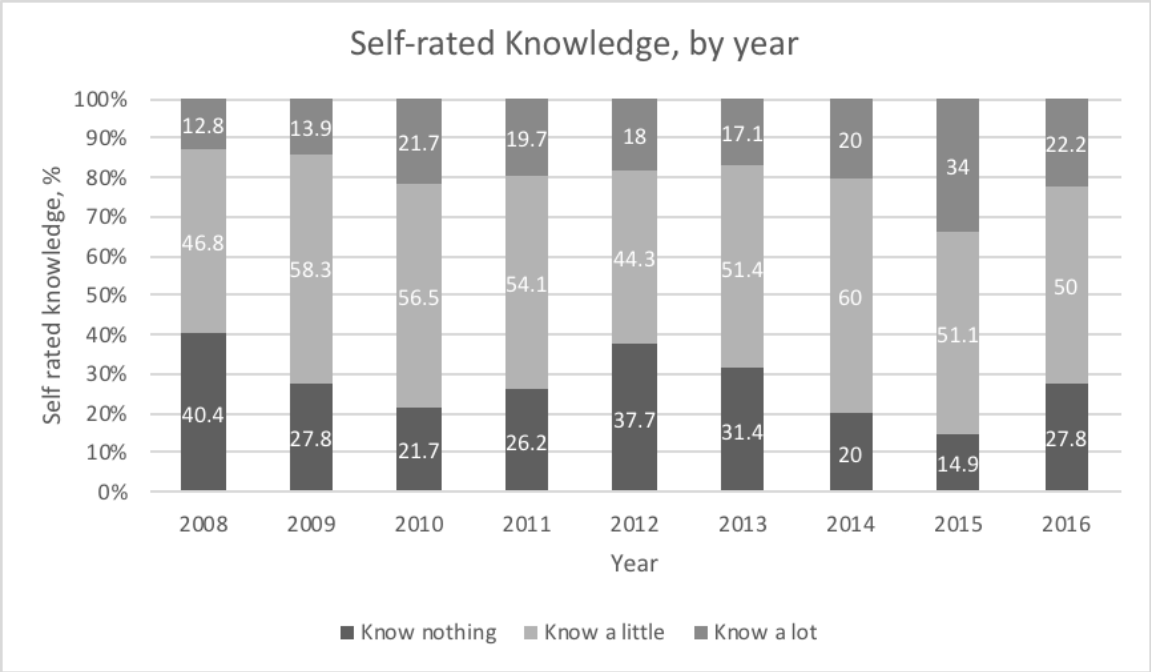
Figure 7: Magic mushroom availability, by year



Knowledge

From a total of 450 PYU participants who answered this question, 125 (27.8%) self-rated themselves as "*knowing nothing about it*," 237 (52.7%) said "*they had a little bit of knowledge*" and 88 (19.6%) said "*they knew a lot*." See *Appendix M, Table A4, Frequency distribution of magic mushroom knowledge by year* for depiction of overall sample rates. There was no statistically significant association between year of use and self-rated knowledge levels, with a Pearson Chi-Square χ^2 =19.501, P-value = 0.244, df = 16. Results are depicted in *Figure 8 (Appendix M, Table A4, Frequency distribution of magic mushroom knowledge, by year).*

Figure 8: Magic mushroom knowledge, by year



Qualitative

I present the results of my qualitative analysis within this section. I begin with a. personal reflection on the interview process. Next, I describe the qualitative sample's descriptive characteristics. I then discuss the themes and sub-themes developed from a thematic analysis of the semi-structured interviews (Braun & Clarke, 2006; Clarke & Braun 2017; Nowell et al., 2017).

Personal Reflection

I found participants to be incredibly open and eager to share their experiences. The interviews made me feel a renewed sense of excitement and curiosity about my thesis. I interviewed one participant a day - there is a certain performative element to interviewing, I felt as though my persona changed depending on the person I was interviewing. As a result, I was often emotionally and mentally tired after interviews.

Some participants shared emotionally upsetting experiences involving depression and suicide during the interview. As these experiences were provided as context, I did not ask the participants to expand on these topics but acknowledged that they did occur. In some cases, I told the participants that I was sorry they had to go through the difficult experiences they shared. I always thanked participants for confiding difficult life experiences to me. I continue to feel an immense gratitude towards the participants for their openness and transparency.

Following interviews, I found some of the content difficult to emotionally process. I would go home and dwell on some of the distressing experiences that were shared with me. "Researchers" are often characterized as objective and emotionless – I felt guilty about the emotions I was feeling, as though empathy and compassion somehow made me a "bad researcher." I shared with my co-supervisor (ER) that I was finding it difficult to de-brief after these interviews and upon his recommendation, sought UVic counselling services for interview de-briefing strategies and tools. I am incredibly fortunate in that I trust and feel supported by my co-supervisors. All novice researchers do not have the same strong support networks. HREBs ensure that participants have mental health supports and there are institutional mechanisms in place to ensure participant safety and wellbeing. I feel a wider conversation is needed around the institutional support and mechanisms that novice researchers may need when conducting social-behavioral human research, and how empathy and compassion can be harnessed as powerful tools in the research process.

Sample Descriptive Characteristics

In total, I interviewed 20 participants. Due to the purposive sampling methods used, self-identified gender was evenly distributed, with the sample being composed of 10 (50%) males and 10 (50%) females. The mean age of participants was 20.9, (SD ± 1.31). Similar to the quantitative results, the majority (95%) of the sample was a current University student. *Table 9* describes qualitative sample characteristics. See *Appendix N, Table A5* for an age and gender description of individual participants, for the purpose of quote attribution.

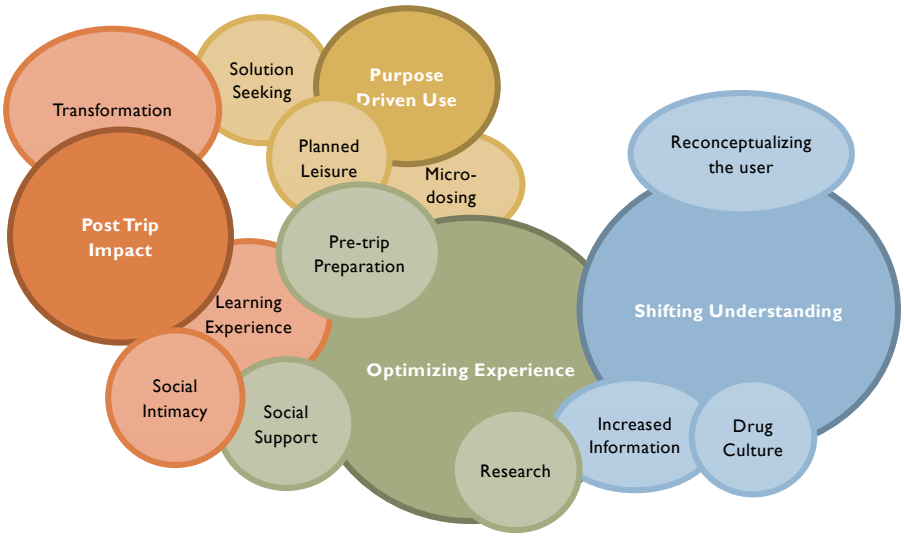
Table 5: Qualitative sample characteristics

Item		*n*	%
Gender			
	Male	10	50
	Female	10	50
Age			
	Mean (± SD)	20.85 (1.31)	100
	19 – 20	8	40
	21 –22	10	50
	23 – 24	2	10
Student Status (current)			
	Yes, University	19	95
	No	1	5

Interview Results

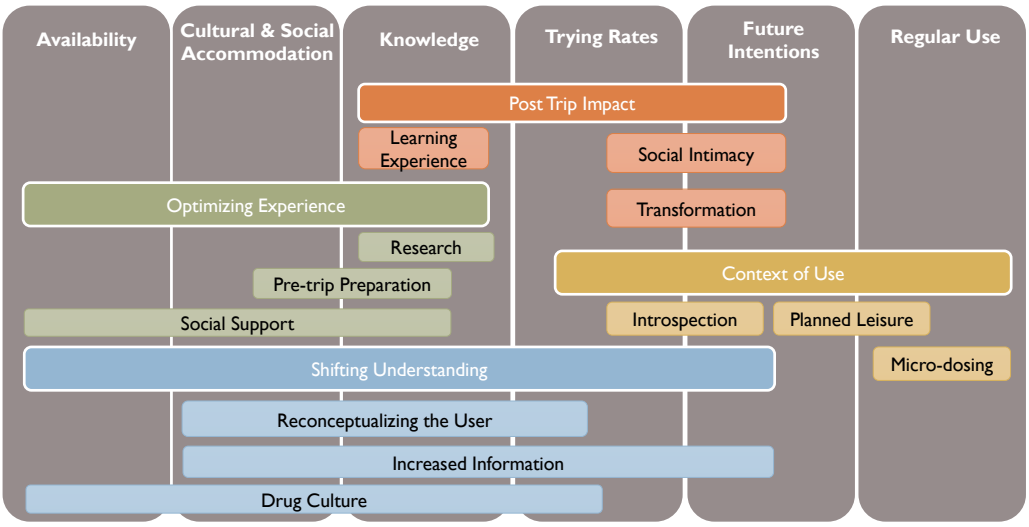
In this section I describe interview results by major theme: (1) shifting understandings; (2) optimizing experience; (3) context of use and (4) post trip impact. Sub-themes are defined within each major theme. *Figure 9* visually depicts the themes and sub-theme relationships.

Figure 9: Qualitative themes and subthemes



As discussed within *Chapter 3: Methodology and Methods*, I approached coding with reference to my theoretical perspective, the *normalization thesis*. I will discuss normalization in further detail within *Chapter 5: Discussion and Conclusion*. However, as I approached coding theoretically, it is important note how the themes are situated within the normalization framework. The relevancy of some dimensions of the framework are tenuous to the developed themes, further supporting recent normalization scholarship arguing for a context-specific conception of normalization (Pennay & Measham, 2016; L. Williams, 2016). *Figure 10* depicts the themes' relationships to the 6-dimensions of the framework. The grey columns are the normalization dimensions, and themes and sub-themes are organized by corresponding colours.

Figure 10: Qualitative themes and the normalization thesis



Shifting Understandings

All participants were between the ages of 19 – 24, and all but one participant were University students. Participants were all "socially included individuals" as they were well integrated into mainstream society through their work and school (Penny & Moore, 2010, p. 562 citing Hammersley et al., 2005). Within western culture, substance use can be depicted as chaotic and inherently dangerous (Moore, 2010). The substance user can be represented as a "*cultural bogeyman*," irreconcilable with dominant social values of control, discipline and rationality (Copes, 2016, p.194). Participants reported re-evaluating this previously-held conception of the substance user as a result of their new

social context. Increased independence, expanding social networks, opportunities to access psychedelic information sources and the BC substance use culture caused participants to evaluate meanings attached to magic mushroom users. This theme is divided into three sub-themes three of which are the primary sources encouraging participants' re-assessment of magic mushrooms: (1) increased information; (2) reconceptualizing the user and; (3) drug culture.

Increased Information

Participants referenced the fast spread of information, current third wave psychedelic research and their increased capacity to undertake their own research for reasons for why they began to re-evaluate the role and meaning of magic mushrooms. The increase in clinical and therapeutic research featured in popular media, in particular, was referenced as causing participants and their peers to evaluate their pre-conceived notions. For example:

> *"I think that especially in the last few years there's been a lot of positive depictions of things like psychedelics and arguably even ecstasy in the media in regard to treating things like trauma and brain damage and stuff like that. I think just the sheer, like I'd almost call it shock factor where people have pre-conceived notions of psychedelics and that its brought up in the media like, these things can actually help with severe problems almost as much if not more that medications shows this study, this study, this study. That almost draws people – it's such a contrast from what preconceived notions where that it almost draws people to show that, increase that curiosity especially among people who are younger, experimental and stuff like that."*
>
> - *Participant 6*

A common theme through interviews was participants accessing information on magic mushrooms, which led to them questioning their previous substance use education based on their research findings. For example:

> *"...In early high school you have like all of the DARE [Drug Abuse Resistance Education] program come in and be like 'don't do drugs, they do this to you' and I didn't really learn anything from that. And so, I don't know, I thought they were bad still obviously, but then it wasn't until I started doing my own research that I found out they weren't bad for you so it made me definitely feel safer about using them"*
>
> - *Participant 3*

Another participant echoed this, saying:

> *"There's more information, right, that people can actually make opinions for themselves as opposed to like see, 'LSD Kills!' And it's like 'oh my god that's crazy! I'm never touching that, my kids will never do that,' kind of thing. But now you see all this information out there, and you can make your own judgements on it.*
>
> - *Participant 12*

Participants noted that they felt information was easily accessible and perceived it to be increasingly featured on mainstream media outlets. For participants, social media presence was evidence of decreasing psychedelic stigma. For example:

> *"I definitely think the stigma towards magic mushrooms is decreasing, especially after there's a bunch of random videos on Facebook, you know, those random videos from Refinery 29 or whatever, just like those basic ass Facebook plugs."*
>
> - *Participant 1*

Other participants referenced podcasts, documentaries, and other popular news outlets as being sources of information. One participant noted that although he felt as though he was seeing an increase in magic mushroom coverage in the media, he was unsure if this was a true representation of the current media landscape:

> *"It's also one of those things that once you are aware of and notice it, you kind of start noticing it everywhere. And so, for me I have definitely realized that, oh this person was talking about mushrooms that time, or little things like that. So, for me I'm definitely noticing it more in culture and media and that kind of stuff, but I'm not sure if it's a result of being more present or just of my – if I'm noticing it more."*
>
> - *Participant 7*

Several participants reported that an increased media presence would lead to higher rates of magic mushroom use in the population. One participant, in particular, was concerned that his perceived increase in magic mushroom popularity would not be met with the same level of preparation he deems as being necessary for a successful magic mushroom experience:

> *"**I'm very worried**. Especially with the increase in popularity [due diligence] isn't necessarily being adhered to. Just because, you know, you have the increase in popularity, and it's usage underground**, but you don't have that education behind why it should be used and how it should be used in the mainstream**, at least based on what I've read from my – from like the more esoteric, spiritual sources that I've found and been researching…**It's kind of something that I almost have a long term concern about**, because there's going to be so many more people being like 'oh yeah, this study says its safe, etcetera, etcetera,' but there's still not this general education about it. I just like – because of some of the most negative experience I've seen within myself but within other people, having very negative experiences on psychedelics in general – I am definitely aware, and I can see the risk. So many people's brains and **so many people's emotional resiliency is challenged and confronted in ways that they're often times not prepared to handle**."*
>
> - *Participant 6, bold emphasis added*

Reconceptualizing the user

Participant referenced their expanding social networks as encouraging them to re-evaluate their attitudes and perspectives of substance users. For example:

> *"I was raised in a very conservative Christian background, so I never really interacted much with drug users – or not in a way that's something that you talk about…I had very little information about it, so I just had kind of the perception that is like 'oh drugs, don't do drugs, kids! Drugs are bad!' And I was talking to some friends….one of them was an environmental science major…one a philosophy major, super smart, very put together and out of the blue they started talking about drugs and mushrooms and stuff and I was really taken aback.* ***I was like 'you're not what drug users look like! Why are you talking about this!'*** *And they were just telling me about this and I became super curious and one of them said something that really stuck with me, he was talking about mushrooms and he was saying, if I were to pick the top three things that had an important impact on my life, mushrooms would be one of them… And so, I was just so curious. Every day I would ask about them, what about this drug, have you tried this? Just getting new perspectives…"*

- *Participant 7, bold emphasis added*

One participant, when asked about her motivations for trying magic mushrooms for the first-time referenced meeting a wide range of people at university as introducing magic mushrooms. For example:

> *"I feel like spending five years in University, you meet so many different people.* ***The past five years have been the biggest social development test of my life****. So yea, you run into every type of people, and then you start going out and you meet older people and you're running into them. So, I feel like a lot of it is social. My education on magic mushrooms is definitely a social thing."*

- *Participant 19, bold emphasis added*

After challenging their pre-conceived notions of substance users, participants re-conceptualized magic mushroom users as being as "*open*," (*Participant 3*) "*curious*," (*Participant 1*), and "*willing to understand different perspectives,*" (*Participant 17*). Participants had an incredibly positive view of magic mushroom users. For some, this translated to viewing non-magic mushroom using people negatively. For example:

> *"I do think there's a type a person who would do it, and that is a person who is more inclined to new experiences. I guess approaching things – like myself – with a scientific attitude…yea,* ***I can't really see like an uptight economics major trying magic mushrooms****, or someone like that"*

- *Participant 14, bold emphasis added*

One participant echoed this, saying:

> *"I'll find out someone [has used magic mushrooms]– I'll totally not think they're kind of a risky person, or, not risky but willing, and I do and I'm like "oh, ok, you're not as in a box as I thought you were."*

- *Participant 19*

Other participants spoke about how they like people more if they find out they have done psychedelics, making connections between psychedelic use and personality, character, and political affiliations:

> *"If I hear someone's tried drugs, mostly psychedelics, I get really excited because I think they're definitely a really open minded person. And I usually just see them as somebody I could probably trust more because they've had more trust in themselves and in other people. I don't know – it definitely seems more like somebody would accept me for who I am because they have seen the world through more perspectives then their own. I don't know if this is naive, but I definitely don't think – I think that they are the opposite of a Trump supporter, that kind of idea."*

- *Participant 17*

The vast majority of participants did not speak about a sub-group or sub-culture (i.e. hippies) when describing magic mushroom user. Generally, participants called magic mushroom use "*mainstream*," with one participant remarking: "*I think its infiltrated every sort of culture and every sort of clique*," (*Participant 19).* The majority of participants expressed that they may not look like the type of person who does substances: "*I think in my experience, like I'm not someone who would typically be classified as somebody who does mushrooms,"* (*Participant 2*). The hippie subculture often associated with

psychedelic use (e.g. Timothy Leary, anti-establishment, counter-culture) was not relevant for many participants:

> *"...I'm very into athletics, I'm very into schooling, I still have that sort of idea where I want to make it to New York, I want to do these things...but [people] don't realize what's in my head, you know what I mean? I think peoples mindsets of the people who do [magic mushrooms] for the most part – has stayed the same, of that...maybe it's just trends or whatever but I think I'm starting to realize that the people who are doing [magic mushrooms] now – or at least the people that I know – are still, I mean, they're not going to be beach bums, they're still driven, they still make sure they can make an impression on people."*

- *Participant 9*

Another participant explained:

> *"I think it's probably becoming a little bit more widespread. It's not just the hippies taking it anymore. It's just regular people looking for some ways to help their mindset, or whatever it is. I definitely think it's going to be on the rise if it isn't already."*

- *Participant 12*

For participants, reconceptualizing substance user, and then being a magic mushroom user led to situations where the participant encouraged their peers to re-evaluate their attitudes and opinions connected to magic mushroom use. For example:

> *"I mean, I definitely have friends that I've told I use them, and you kind of get that stigma, like 'woah, you use drugs!' but it's really funny now because one of my friends that used to say that and kind of avoided me for a while, she actually came to me and we did them together"*

- *Participant 3*

Half of the participants reported feeling some sort of judgement from non-magic mushroom using friends, to varying degrees. Judgment was connected to being uninformed. Female participants were more likely to report judgement from their non-magic mushroom using friends. The way judgement was expressed was diverse. Some

reported their friends expressing disappointment, surprise, or in some cases anger. Female participants had to defend their choices more than male participants, often through explaining their safe use practices or the positive outcomes they have experienced as a result of their magic mushroom use. One participant explained her friend was angry at her, as he perceived her magic mushroom use as dangerous, and by extension saw her as not adequately recognizing the risks associated with substance use:

> *"I've gotten different levels of [judgement]…I had one experience with a friend who's very hard lined about these types of things. A good friend of mine, but he wouldn't listen to what I was saying. [With being] the type of person I am, I was like 'no, you're gonna - now it's a challenge.' I actually have it written down because we're in math class together and just before we entered math class we were talking about it at breakfast, and he changed the topic right away. He did not want to talk about it. So I brought it up again…**I asked him 'do you think I would do something – you know who I am – do you think I would do something so incredibly stupid that I would put myself in danger, or at risk of whatever?'** And he was like, 'well, no, I don't.' 'Well, would you be open to hearing about my experience then?' So, he said 'yes,' and then in math class I just wrote down a bunch of stuff about my experience and he as reading it and I have it all recorded because we were passing notes to each other – it's in my math notebook. **And by the end of it, he was like, I think he said, 'I think my perception of drug use' – I didn't really like this – 'ties back to deviant people who get the spotlight in the media.'**…And after he said that, **he said 'obviously this [magic mushroom experience] has affected you in a very positive way and I forget about the people who use these types of things in very safe environments'** – I'm paraphrasing, but year, by the end he was like 'I'm gonna do some more reseach about this.' So yea, that was interesting for me. I sent him a TED talk about it too."*
>
> - *Participant 18, bold emphasis added*

Having a lengthy conversation with non-users was common experience for this participant group. For example:

> *LS: do you ever feel judged by your non-using friends?*
>
> *"I think maybe there's a part of them that do, but generally that occurs at the beginning of the conversation. I've been very bad at this – where I go to a party, and someone will ask me about it – this happened on Saturday, I hadn't seen these friends for like a year, I was at their house party, and this girl came up to me, and she's like 'oh, I'm thinking about mushrooms and it was basically this [gestures at LS and himself]. Like we had an interview! For like an hour. I was like, you want to know about this – and so I'm sort of trying to just – I would never push it on people. It's one of those things you have to find yourself…but yea, with the amount of people doing [magic mushrooms], its [judgement] pretty minimal. Yea, I would definitely say my group of core friends are steady users."*

- *Participant 9*

A minority of participants were more defiant in the face of judgement. For example, one participant reported feeling judgement from her non-magic mushroom using friends. However, the judgement did not change her opinions or behavior. She viewed their judgement as being temporary, expressing that with time her non-magic mushroom using friends change their opinions:

> *LS: "Do you think your non-magic mushroom using friends would judge you? Or do you think it would be no big deal?"*
>
> *"I think I used to be a person in that same place where I'd look at my friends who were doing them and think 'I wouldn't do that! That's not right!' Maybe that's what those people are thinking about me. But, at this point, I don't care and almost feel like a newfound 'ha, ha! It doesn't matter and you're going to find out one day that it doesn't matter.'"*

- *Participant 2*

The other half of participants reported feeling no judgement towards their magic mushroom use. Some participants said this was because all of their friends used magic mushrooms. Others explained that friends who are not magic mushroom users are either not interested, or have not had the opportunity:

> *"I definitely don't feel judged. I know that some of them want to do them, but they're just kind of like, 'you know, the time hasn't happened,' they just want to wait for a good time. And other people, I feel like they probably just don't know a lot about it and for themselves they don't really have any interest, but I've never felt like they're like 'oh, what are you doing with your life?' That type of thing, there's no judgement."*
>
> - *Participant 13*

Drug Culture

Some participants explained their shifting understanding of magic mushrooms with reference to the substance use culture in Canada. Specifically, cannabis legalization was referenced as encouraging conversation about psychedelic substances:

> *"I think that the conversation of marijuana or cannabis being legalized and being more accessible right now – just opening up that conversation is so important. Like, I had a co-worker who said she didn't agree with the legalization of cannabis, and instead of getting mad at her I just talked to her. You know if you just open up the dialogue you can find their reasoning, and you can find your reasoning, and then you can find common ground that gets both. Right?"*
>
> - *Participant 17*

Another participant spoke of how legalization was changing the prevalence of stigma:

> *"I like to think that around the whole drug culture, [stigma] is kind of lessening. I don't know if that's a government, like kind of brought on by the government with their whole opiate needle sharing programming – I'm not sure on that because I try not to – but maybe it's the government. I know the legalization of cannabis in Canada has gotta be having an effect on drug use."*
>
> - *Participant 14*

Several participants did connect the current BC opioid epidemic (BC Coroners Service 2018a; 2018b) to their changing attitudes about substances and safety. The natural properties of magic mushrooms were equated with safety within the context of an epidemic caused by synthetic substances. For example, one participant expressed that she

"*only want[s] to put natural substance in my body because that's from the earth,*" (*Participant 11*). Participants explained that they had or may have used synthetic substances prior to the opioid epidemic:

> *"I have definitely dabbled in MDMA and whatnot but I haven't touched that for quite a long time because – and its not because I don't enjoy it or had a bad experience, its literally because I don't trust anyone, and I don't ever want to be that kid where their mom's like 'I lost them to this,' and is like 'they were smart and educated.' If it's not safe I usually don't touch it…As far as mushrooms go you're always taking a risk, but generally I find that earthborn substances are a little better than – they don't get as cross-contaminated I guess as synthetics"*
>
> - *Participant 19*

Another participant explained:

> *"I think that the whole opioid epidemic…or even just a fentanyl scare, if that wasn't a thing I definitely would have tried M and MDMA and other party drugs when I've been offered the chance. There have been countless times, over a dozen times, where I've had drugs handed right in front of me."*
>
> - *Participant 1*

One participant expressed hope that the opioid epidemic would encourage others to re-evaluate how they view substance users and substance use:

> *"Right now, because of the opioid crisis, it's like the perfect time to relook at the way we treat drugs in this society, for sure. And I think just the extend of it, and so many people realizing that their friends or family members were doing opioids from their death or their near death via overdose, its like we don't – there's a stigma around it and its detrimental to everything. There's nothing good that can come of it…"*
>
> - *Participant 17*

For study participants, the current social and political climate towards substance use, BC Opioid Crisis and cultural attitudes towards natural substances framed magic mushrooms as a safer substance use option.

Optimizing Experience

Optimizing experience was the largest theme within data results. This relates to participant's efforts, intentions and actions undertaken prior to consuming magic mushrooms to ensure that their experience is positive. This took different forms depending on the participant but shared the common goal of achieving a positive mushroom experience. Participants prepared on a personal (*set*) and an environmental (*setting*) level. Specifically, within this theme there are three sub-themes: (1) Research; (2) Pre-trip Preparation; and (3) Social Support.

Research

For many, the research starts weeks, and for some even years before, taking magic mushrooms. Research was undertaken at the substance, personal, and context level. Participants researched magic mushroom's pharmacology, safe-use practices, dosing, and the location and context of use. Research was both a social and individual activity. Connected to the shifting understanding theme, one participant spoke about how he encourages his peers to do research after they have indicated that they are interested in trying magic mushrooms:

> *"So, a lot of times it will just come up in conversation, like oh, I've done mushrooms and then it will just lead to my experiences, are you interested in that. I get people to do…I like to tell people a lot of interesting stuff that gets them fascinated, like MK-ULTRA.*[14] *There's a lot of little stuff like that, that kind of piques their interest. And then if they're interested I'll get them to do a lot of their own independent research, and decide, if this is something that they want to do or not. That kind of thing. Yeah, so now I have a group of people who have done their research and are really interested in*

[14] MK-ULTRA was a CIA project, spanning 1953 -1973. The project attempted to develop mind control techniques. The CIA administered psychedelics to participants (often without consent), in a misguided effort to discover if psychedelics could be used as an interrogation technique (Powell, 2011).

> *it so we're going to go do them at [location]. But I think that's the biggest thing, making sure they know what they are signing up for, as opposed to like – I really don't want it to be a peer pressure experience kind of thing. I want it to be something that they actively make the decision to do themselves, because I think that's really important."*

- *Participant 7*

Another participant spoke about how he and his friends will send each other sources on magic mushrooms. For him, research is an ongoing process, encouraged through his social connections:

> *"So, after learning about [psychedelics] it just kind of piqued my interest a but more, and then – I started a self-education basically. Looking stuff up online., read – and the thing is, my friend group is a lot into that kind of stuff [psychedelics] too, and then thing is, my friend group is not your hippies, right? They're all engineers, one of them is going to med school, all these kind of like, very off the hippy spectrum...**Anyways, some of my friends would just send me articles, and I'd give them a read over. Just to expand my knowledge on this kind of stuff**. Its super interesting to me, so that's what I do on my time off."*

- *Participant 12, bold emphasis added*

Participants depended on a variety of sources for their research. All participants consulted multiple sources. Most frequently, participant reported accessing scholarly peer-reviewed articles, mainstream media articles, online discussion forums, TED Talks, or substance use information websites. Several participants referenced Erowid, a psychoactive substance use educational organization:

> *"Erowid…its like a drug data base, basically... It's like an assembly of people's trip journals, or legal stuff about how the laws are different in different countries, like the pharmacological effects of certain substances, that kind of stuff…that's my main resource I think. It's just like a massive database for all these different substances. Its super - a. lot of the information I'll look around for on the web and find an article that explains a little bit about it, or a*

> *study that shows this, but it's all collected on Erowid, which I find super helpful."*
>
> - *Participant 7*

A small number of participants reported avoiding specific sources of information. For example:

> *"I actually try to avoid government websites because even the information they have that is good, they tend to also have stuff that I'm like, 'this isn't true!' Like, a straight up lie. And I can't trust that."*
>
> - *Participant 17*

Several participants explained they would reference scholarly peer-reviewed articles for information during their research process. For example: "*I start out with researching it and doing a lot of scholarly articles. I just went into academic search complete, the UVic databases, and you know, did that.*" (*Participant 18*). Participants reported an interest in in applying research findings to their own magic mushroom experience, specifically findings linked to depression alleviation. The majority of participants took a multi-faceted approach, looking online, in scholarly peer-reviewed sources and talking to their peers:

> *"I talk to people that have done them, but more so research online and reading through threads of people's experiences and things like that because you kind of just get more info. And then doing actual research on the chemicals and the interactions in the body, it's interactions with other substances and just trying to learn as much as I can about it before I do it [magic mushrooms]."*
>
> - *Participant 4*

Research was also focused on logistics. Location, in particular, was researched. One participant explained, "*I spend a lot of time trying to pick out a good location…I would definitely say that I plan it out. I'm actually planning one right now for a few weeks in the*

future," (*Participant 7*). This participant spoke about how he would take the time to find the ideal nature location, which was close to main roads, but was secluded and not on busy hiking trails. This was to ensure his group would not be in a high traffic area but was close to the roads if there was an incident and they needed to leave. To find the ideal location, the participant and his friends would look at online photos, google earth and satellite images. Although this process seems onerous, participants viewed the lengthy research process as necessary for having a positive experience. For example:

> *"I'm sure there's people who have bad trips and that kind of stuff but I also think that with the right amount of planning and set up – set and setting – I think there's a pretty low risk and pretty high reward compared to other drugs for sure"*
>
> - *Participant 4*

As participants gained more magic mushroom experience, they relied on their previous magic mushroom experiences to determine dosing and context of use. In general, participants had a strong understanding of their personal reactions to magic mushrooms and took efforts to personally reflect on how their previous experiences made them feel and react, and how that information could be used to benefit their future experiences. Multiple participants kept *Trip Journals*, where they recorded their dosages, experiences, and feelings; and would use this information as a basis for future experiences.

Pre-Trip Preparation

All participants undertook a preparation process prior to their magic mushroom trip. Preparation was, in part, informed by their research. Participants would prepare their emotional state and the magic mushroom environment. There was a high level of

logistical and safety preparation reported, with participants making sure they had sufficient water and food for their trip. The preparation process could be as small as cleaning one's room to ensure it was a pleasant space to be in, or as involved as doing a pre-trip diet-cleanse. Preparation was an important part of the process, one participant explaining:

> *"Compared to other substances mushrooms are like 4-6 hours. I think it's a decent amount of time that things could go wrong, and things could happen so it's important to plan out for stuff like that"*
>
> - *Participant 5*

For many, the preparation process was proportional to the magic mushroom experience they were intending to have:

> *"It's basically in proportion to the amount that I plan, the amount that I prepare, the amount of time that I allot myself in the setting that I put myself it, the amount of energy that I put towards that entire process it just proportional to how much the actual in taking of drugs is going to affect me."*
>
> - *Participant 6*

Many participants spoke of a lengthy logistical preparation process if they were planning to take magic mushrooms outside of their home or taking a larger dose than they had previously experienced. For most, the main components of logistical preparation were ensuring they had had food and water and preparing their *set* and *setting.*

As compared to male participants, female participants described a preparation process that was especially focused on their individual safety. All participants were concerned with ensuring they had a safe experience, but female participants reported writing or instructions to themselves before their magic mushroom experience. For example:

> *"I always have $20 in my bag for a cab ride, and literally have a sticky note in my purse giving me explicit instructions for like, if I was having a bad time, like a number for your friend, they will call you a cab. I've never had to do it though."*

- *Participant 15*

One participant read me a note that she keeps with her that she can read if she experiences negative feelings while on magic mushrooms:

> *"If you're feeling agitated, scared, nervous or depressed, remember that you are in no danger. Your physical and mental health are intact and safe. Cuddle into some blankets, listen to some music, call [friend]. You are ok, you are simply learning. Remember I am here, I love you."*

- *Participant 17*

This same participant kept a list of activities she could do if she became felt herself beginning to experience a bad trip:

> *"If I start to get a little anxious, if I get into an environment where I'm like, I can't leave, something wrong, and I start to have a bad trip, these are things that I know will pull me in a good environment, so I go do these things."*

- *Participant 17*

Preparing activities was common among this sample. The purpose of these activities was to pull the participants out of a negative headspace. Popular activities were watching children's movies or painting.

Participants also spoke of an introspective process, where they would evaluate their personal ability to undertake a magic mushroom trip. This was generally described with reference to *set* and *setting.* Participants reported taking their *set* very seriously, and some participants would not use mushrooms if they felt they were not emotionally or mentally prepared to do so. For example:

> *"I try to make sure my mindset, or kind of analyze my own mindset, and see if I'm, read or at peace enough to handle it because sometimes I'm not and I will go weeks without wanting to try anything because I'm not at the place where I want to be."*

- *Participant 16*

Preparation was tied to the concept of there being a correct way to do magic mushrooms:

> *LS: You said there is a correct way to do magic mushrooms. Can you walk me through what that means to you?*
>
> *"For me, I think you have to know yourself really well, first of all. And just, know what kind of mental state you could do them in, and I know there's that set and setting stuff, and that super big for psychedelics. That is so important. So, if you're going to surround yourself with people, they have to be people that you totally trust, for the first time especially. Start slow, know your dosages, stuff like that. So, if you know that much, I think the correct way to them is know the dose you can handle, be around the people, or yourself if you like that, in that safe environment, on a day that your brain isn't going to be panicked or anything, and just have the things around you that you enjoy – music, a glass of water, just little thing, blankets, things like that. Then I don't really know how things can go wrong. So that's my correct way of doing them"*

- *Participant 16*

The incorrect way of doing magic mushrooms was often described with reference to using magic mushrooms as a party drug.

> *"I don't know that many people who use magic mushrooms as a party drug, but I can definitely see there being bad experiences, bad ways to do magic mushrooms. Like I heard of one friend who did them with some friends, and they all just like stayed in a basement, and were locked in a basement basically – not locked in but they stayed in this basement – and she was like crying the whole time, and everyone was so bummed out. And I was just like 'wow, that's the worst way she could possibly do mushrooms, in my opinion.'"*

- *Participant 7*

For all participants who described bad trips or challenging experiences, the cause of the bad trip was associated with their emotional state going into the experience, or with their context of use, rather than the substance itself:

> *"I think it more has to do with either me kind of being upset that I've been introspective and realizing some things that maybe my body's been trying to keep away from me for some reason – so I've realized something that kind of hurts."*
>
> - *Participant 17*

Social Support

The last sub-theme within optimizing experience is social support. This involves the participant relying on their social network for a positive magic mushroom experience. All participants expressed that it was incredibly easy to access magic mushroom through their social networks. At the time of the interview, no participant was growing their own magic mushrooms. A few participants had gone magic mushroom picking, but this was not their primary source of mushroom acquisition. Overwhelmingly, participants cited their friends or acquaintances as being the source of their magic mushrooms, for example:

> *"I always have gotten dried mushrooms, and it's always been from a friend/dealer. So either a co-worker who knows someone who deals, it's always a rusted link. Yea, so usually, honestly, most of my dealer or at least solid connections to dealers have always been classmates or whatever."*
>
> - *Participant 17*

I asked participants how long it would take them to obtain magic mushrooms, with responses ranging from 5 minutes to 3 days. Participants spoke about having considerable access to magic mushrooms, and they felt that this may contribute to greater general uptake:

> *"I feel like [magic mushrooms] are very common. Like me and my friends, I like to think that you could look at me and be like 'oh she doesn't do drugs' but* ***it's just a big common thing now, and I want to say ease of access makes it more common.*** *So, like me and my friends who are really studious, we all have co-ops, jobs, all of that and we do it pretty occasionally."*

- *Participant 15, bold emphasis added*

Participants' social connections also helped to establish a safe magic mushroom experience. One participant spoke about his friend preparing their environment and ensuring he and his other friends took appropriate doses and were in a suitable physical state:

> *"[My friend] just had this prime set up for everything. He was like 'ok, everyone, have you eaten today? What have you eaten today? How much do you weigh? We're going to have to dose this according to weight.' And I'm like, 'ok. Well this is very strategic and calculated out.' I'm like 'he's one of my best friends, he's a very safety-first kind of thing. We did it in a very safe environment, it was like a house to ourselves and we have a place for music, and a place to eat, and very chill kind of thing."*

- *Participant 12*

Many participants identified a *Trip Sitter* for their magic mushroom experience. A Trip Sitter is who someone who stays sober and ensures the safety of the group. The Trip Sitter identification was an intentional and involved process, with participants noting that they felt the Trip Sitter had to be someone with previous magic mushroom experience, someone who understood the dynamic of being on a trip and someone who they felt emotionally close to. Ensuring the Trip Sitter was the right person added to the experience: *"…it's really important for mindset you go into it with having a positive person there who you know is there to kind of watch your back and guide you…*" (*Participant 17*). Participants described Trip Sitters as safety measures which allowed them to relax, and enjoy the experience:

> *"…I think its especially important for them [Trip Sitter] to have experience with mushrooms. Say someone is having a bad trip and they want someone to talk to, there's a Trip Sitter who can help them get in a better mind space. It's kind of just a safety measure but I think it's an important part. Especially because the mindset going into it is super important for how your trip is going to be, and if you know someone there who's like, if something goes wrong they'll take care of me. I think that's super important for people to just be in a better mental state to enjoy mushrooms more."*
>
> - *Participant 7*

For one participant, who has diabetes, having a Trip Sitter was also a way to ensure her medical safety: "…*since I have diabetes, having a trip sitter was super important to me, and somebody that I trusted, somebody that understood my diabetes and had emergency procedures and that kind of stuff*," (*Participant 18*). One participant described her experience of being a trip sitter, noting that it is burdensome, but teaches her something about herself:

> *"Trip sitting, I've realized that you have to do it with someone that you really, really, really, really like. Like you can spend 12 hours with them? Because of you're not tripping, and they are and you don't want to leave them without anybody, you are going to be with them for however long their trip is…because you really have to take into account that someone is in a different state of mind than you, if it doesn't bother you but it would bother them you might want to them and put them first.* ***That's what I think all these drugs like psychedelics do. It allows you to exercise empathy in a way that no other avenue teaches you empathy****."*
>
> - *Participant 17*

One participant utilized the website *TripSit* when he experienced a bad trip to help him re-focus his emotions and feelings. In this particular context, the participant was home for the summer, and took magic mushrooms with friends. He received a call from his parents and had to go home. When he arrived home and was alone in his room he began to feel

agitated and anxious and did not have his friends to talk through his emotions. On the website he live-chatted with people who helped him with what he was feeling:

> *"I did mushrooms and marijuana and I'm freaking out right now. They just said 'don't worry, it is going to pass, you're going to be fine,' and they gave me links to music to listen to and stuff. It's a pretty good website for that type of stuff."*

- *Participant 20*

Other participants, although not using the term *Trip Sitter* or designating a person to watch them during their magic mushroom experience, explained they would tell their close friends their plans to do magic mushrooms as a safety measure:

> *"…and so we just sort of plan it out that she knows I'm doing them, even though she knows I'm very responsible of them, but even just having somebody else in the knowledge of where I'm going to be is a good thing."*

- *Participant 1*

Rather than seeing the lengthy preparation process as troublesome, participants commented that it set themselves up to have a better experience on magic mushrooms. Participants described a social preparation process:

> *"I bought a disposable camera, that was important to me…We went shopping the day before…so we made tea and cut up a bunch of fruit. We had a bunch of snacks – crackers and banana bread. We had a massive bag of food. Everyone brought their own lunch…Our trip sitter had like blankets and a mat out so [they] could sit and do [their] homework. We brought speakers. [The Trip Sitter] was kind of our home base….we had a home base that people could come back to because people were exploring the beach and stuff. And that was very intentional. We wanted that home base. [The Trip Sitter] had movies and everybody picked their movie that they would want if something were to go wrong. Just to take them out of their own head."*

- *Participant 18*

For many, the preparation process is part of the overall experience:

> *"You have all the weed. You have all the food. You have the water. And the person would like have speakers or something…. It's very organized…Prior to the trip we went to the grocery store just to get all these ingredients and everyone would just split the bill after, or whatever. But the thing is, I don't know, it's not the trip itself that is special but it's just like everything leading up to it.* ***The prepping, everything. It's fun, it's a good time."***
>
> - *Participant 12, bold emphasis added*

Social support was an important feature of optimizing their magic mushroom experience. Social support mechanisms were accessed for procuring magic mushrooms, developing safety mechanisms, and having an enjoyable overall process.

Context of Use

Context of use refers to circumstances and setting of the magic mushroom experience. Magic mushroom use motivations, practices and behaviors are influenced by the substance use context. Analyses showed three distinct contexts of magic mushrooms use: (1) introspection; (3) planned leisure and; (3) micro-dosing.

Introspection

An introspective trip is a magic mushroom experience where the participant uses magic mushroom effects to work on an issue, often spiritual or related to self-development. For example, one participant uses magic mushrooms to reflect on difficulties that are occurring in her life: "*If there's something that I can't stop dwelling on, I take them…it's time to take a dose and learn some things about myself*" (*Participant 17*). Many participants reported personal analysis or development goals. For example:

> *"Obviously my experience from mushrooms comes a lot more from not necessarily viewing them as something that's inherently recreational or inherently something that's just like ah, pop them and see funny colours or things like that. I do see a very antigenic and spiritual use behind them, at least in regard to my own emotional and psychological development and everything like that."*

- *Participant 6*

Another explained,

> *"…the way I use them at least is for personal development and for new perspectives on issues I'm thinking about, that kind of thing. I very much like to digest my experiences afterwards so I like to space them out very far."*

- *Participant 7*

Some participants wanted to experience mysticism or have a spiritual experience. Two participants expressed an interested in Buddhism and saw magic mushrooms as a way to access Buddhist enlightenment, or Nirvana. One explained:

> *"A lot of the eastern mysticism and stuff, a lot of them probably don't encourage that you use…they would probably discourage the use of substances to attain that kind of level in your mind. I'm not conflicted by that, personally. I wanted to see what the shortcut was like to get there. I know they were like, you have to go through all these steps. To this path, to get your mind to see this way, to open this way, to just be enlightened, to obtain Nirvana, and all those things. I feel with psychedelics you can get a taste of that which might be like a little bit of a cheat in their minds, but as I say, I just want a taste! I don't think I'm ready to embark to this deeply esoteric lifestyle, or anything, but I'd like to have a taste of what it is."*
>
> *LS: Can you tell me about the taste of nirvana you experienced?*
>
> *"It was sort of part of ego-death – I've definitely heard of it, I didn't really know what it would entail, but it was sort of like, yea, I just lost any sort of sense of self, my personality, I had no tie, no concept of who I was as an individual. And so, I was just this existing entity. This is going to sound weird…but it was like I had*

> *engaged in the cosmic dance of the Shiva. I was just one of the many things being crated and destroyed. This trip went way beyond, I had no concept of these things prior to this trip. I didn't know what any of this was. But then I went through that. I expected to maybe – I don't know, think deeply about something or have some sort of a-ha moment but still retain my ability to think and speak, and I had none of that at the height of my trip"*
>
> - *Participant 16*

In the above quote, the participant entered her magic mushroom trip with the purpose of having a spiritual experience and had a set of expectations about what a spiritual experience is. Her spiritual experience was not what she had anticipated but reported that she continued to draw deep meaning from her trip.

The relationship between purpose, or motivations of use, and outcome informed participants' future intentions to do magic mushrooms. The majority of participants spoke about how their magic mushroom trip outcomes would encourage them to do magic mushrooms again, in an effort to re-evaluate a problem, or re-experience the phenomenological effects. One participant reported that he felt his magic mushroom experiences met his purpose, which made him not want to use magic mushrooms in the future. To illustrate:

> *"I've got the experience, I know what it's like. It's not like I don't want to use them – yea, actually, I don't want to use them.* ***I have no desire to use them anymore. It was an experiment, and experience I've done.*** *But wanting to use them those few times, it was definitely with a scientific approach. I know the second time I definitely wrote a lot down…****It's not prompted by anything negative****. Each three times it was all positive. I left –* ***I came out knowing things about myself that I didn't know before. I shifted my perspective****. It was a couple days after, and I was figure, ok,* ***that's all I really wanted to get out of it.****"*
>
> - *Participant 14, bold emphasis added*

Some participants began their trips with the understanding that magic mushrooms will expose issues within their sub-conscious. In this case, the participant would purposely enter what could be perceived as a negative experience, in where they were thinking about problems or adverse issues. Magic mushrooms were a tool that allowed participants to confront things they would not normally be able to consider and express. For example, one participant explained:

> *"...mushrooms are amazing if you're dealing with a lot of trauma or you're not very good at opening up to yourself or other people, I think mushrooms are a great thing to do to face emptions that you don't normally face"*
>
> - *Participant 20*

Another participant noted that magic mushrooms, and psychedelics, helped him confront suppressed emotions:

> *"...I find that you do have some questions that are very apparent, and then you also have questions that you don't even think you have. They're just trapped in the subconscious of your mind and when you tap into that, they come up. And that's why I think mushrooms are such an emotional experience, because all of those feelings that you feel briefly, just for a moment in your everyday things, you sort of push away and it gets trapped in your subconscious state of mind and when you do mushrooms, or LSD, or DMT or whatever, I find that it just taps into that. And so, all the questions that you might have, or you just never acknowledged, they all come up."*
>
> - *Participant 9*

Planned Leisure

For some participants, the purpose of doing magic mushrooms was to enjoy their leisure time. In these cases, participants were using magic mushrooms as an activity, and would take magic mushrooms with the intention of having fun or taking a break from life.

Doses ranged and were dependant on the participant's activity. One participant explained using magic mushrooms for a leisure purpose:

> *"So last time I took them, it was much colder, it was the fall and I think then I was already feeling really, really good about myself so I think that time – I wasn't with the same person. I was with a different person, and we were just at a house. We started in the morning, we didn't want to do it at night, just in case. I just always want to set myself up well and it was less nature oriented, so it made it less beautiful, but it was still pretty fun because I got really intense feelings, but I think the way I was using it at the time wasn't for the purpose of like that – it wasn't for the purpose of becoming better. It was just something to let go and enjoy some time."*
>
> - *Participant 2*

Participants magic mushrooms as an aid that helped them enjoy their leisure activities, rather than tool to achieve new experience. Participant expressed their leisure trips as taking personal time for themselves, for example: "*It was definitely some downtime. It was like, the perfect personal day. Yea, it was a personal day*," (*Participant 14*). Participants reported using magic mushrooms after university exams and would schedule their leisure days.

These leisure experiences were about removing themselves from the stresses of everyday life. One participant noted, that for him, part of the experience was just letting go and having a good time: *"I dance, and I just become silly, and it's just a joyful experience" (Participant 20)*. Participants explained that they needed to let go, and magic mushrooms were a mechanism to do this:

> *"So, I find it's a really nice way that I can escape and let go in a way that also doesn't worry me about escaping and letting go. I worry way too much. And it's one of the only drugs that allows me not to worry."*
>
> - *Participant 11*

Leisure is tied to pleasure. Many participants spoke about the intense enjoyment they derived from magic mushrooms and how this was a key motivation for using magic mushrooms:

> *"I think mushrooms are really fun. They have a lot of benefits in terms of the research I've read and such. It increases neural connectivity, different things, along those lines. But I also think mushrooms are fun, they get you super high, and you laugh with your friends and giggle and see things and go places that you normally wouldn't. So, yea, I think there's in the moment benefits, which could be like, laughing your ass off with your friends for 15 minutes, but also I think there are there, may be long term effects too."*
>
> - *Participant 8*

This participant explained his magic mushroom use on two levels: one, through the immediate, pleasurable benefits, and two, through suggested long-term benefits. This participant was specifically referencing magic mushroom use and increasing neuro-plasticity, which he purported to be tied to long-term neurological health.[15]

Participants reported that magic mushrooms bonded them with their friends, produced feelings of complete euphoria, and were a way for them to enjoy their down. I asked all participants what they enjoyed about magic mushrooms, and the majority reported that they felt pleasure and joy. For example:

> *LS: what do you enjoy about magic mushrooms?*
>
> *"I like the feeling of oneness that you experience when you're with people you enjoy the company of, or you're just in nature by yourself. You get this kind of –* ***there's definitely a deep joy I find in mushrooms.*** *I've never had a bad mushroom trip, personally. Maybe a moment or two of panic, like I said, but it's always been a positive experience and I think if you do them correctly they always can be. And there's just this intense joy that's really unexplainable*

[15] There is no conclusive long-term evidence on psilocybin's neurological effects.

> *that's associated with them. So that I enjoy, and just having the ability to have the mind opened."*
>
> - *Participant 16, emphasis added*

For a few participants micro-dosing was a feature of their leisure time. This was always due to the participant not wanting to use alcohol, but still wanting to enjoy their time in venues where alcohol use typically occurs. Participants reported micro-dosing at clubs, bars and parties. Micro-dosing made them feel more social, yet still in control:

> *"you feel pretty good…just lightened mood and you really want to get to know people I would say, you want to have a deep conversation with them. And then I also find it makes music sound really good and it kind of makes lights and stuff a bit brighter."*
>
> - *Participant 12*

Many participants reported that they do not tend to drink a lot, and some attribute this to their magic mushroom use:

> *"I'm see them [drunk people], and I'm like 'I'm so glad that's not me, I'm so glad I don't drink alcohol.' Actually, I would say that mushrooms are part of the reason I stopped drinking alcohol. Just because…I saw another side to it and I just didn't want to be like that – like out of control with my body"*
>
> - *Participant 3*

In contrast, one participant, a regimented micro-doser explained that he was unable to micro-dose at events where people were consuming alcohol:

> *"…I've done it a couple times where I've been on psychedelics around people who are drunk, and everything like that, and it's very difficult to tolerate because the way that you're thinking, the way you're perceiving reality is so much different than someone who is drunk. It's actually a lot harder to talk to someone who's drunk when you're on magic mushrooms – at least I find – than if you were on magic mushrooms and talking to someone who is sober. Just because, I don't know, the effects on the brain is the*

> *exact opposite. One is a heavy inhibitor, and one's very excitatory."*
>
> - *Participant 6*

Within leisure time, participants used magic mushrooms as a tool to help them escape or practice self-care, as an activity to do with friends, or as a social lubricant.

Micro-dosing

Many participants used magic mushrooms functionally, in that magic mushrooms were a tool to achieve, or enable, aspects of their everyday lives. All functional magic mushroom use was done through micro-dosing. Within the sample, six participants were following a micro-dosing protocol at the time of the interview. An additional 4 had tried to micro-dose in the past. Several participants expressed a desire to try magic mushrooms in the future. The vast majority had heard of micro-dosing, and often knew someone who micro-doses. One participant explained his practice:

> *"What I do most commonly is something called micro-dosing, and this is something that I've talked about a lot with other people. And it's like you basically take 0.01 grams of a mushroom and sublingually dose it, and it doesn't give you any sort of body high, or psychoactive effects or hallucinations, or anything like that, but instead, it enhances your neuro-cognitive abilities so you're more able to transcribe and work with thoughts with clarity and everything like that. This is based on studies I've read – I couldn't quote them specifically right now – but they're just basically revolves around the neuroplasticity of why mushrooms are used, and everything like that…I don't feel any hallucinogenic properties because I'm taking such small doses, such a small increment of it. I'm usually getting – my thoughts are clearer, I feel like I'm able to focus a little better on school work and have a little more control over my brain and what it does and why it does the things that it does."*
>
> - *Participant 6*

Participants noted that micro-dosing improved their self-control, which they used to improve their diet intermittent fasting practices, or to increase their writing and work outputs. For others, micro-dosing was for the purpose of improving their mood and mental health:

> *"It's a very subtle to notice but your mood is just, it goes up, you're not bothered by some things. Things that would have bothered me a year ago, they just don't exist… I've sort of developed this kind of control over what I let – just the desires and sort of feelings I have on in my head. You're more emotionally stable, and I guess you're getting a little bit better at mastering yourself, if that makes sense."*
>
> - *Participant 9*

One participant explained that she micro-doses for mental health purposes, and has seen an improvement since she began her micro-dosing practices:

> *"A huge reason why I've been micro-dosing is that I'm at a point in my life where my mental health is a lot better than it used to be, so I've been trying to just continue with that and improve on it. But there's a lot of stuff from my childhood that still comes up – and it just kind of comes up and you just try to feel it and let it go but sometimes it's so – you can just tell it's so subconscious and you're just kind of doing things out of routine, it's just who you are, and those are some of the things that I – those are the reasons that I take them. Ok, let's try to maybe look into this and see why I have these habits, and why I'm doing these things…my mood and my behavior has just been phenomenal. I kind of just did it because I thought I'd be better at writing or something, but it's actually helped me to decrease the highs and lows you get in your life where you just feel – or it helps to not dwell on things too. I find I dwell on things a lot less. So it's like, I'll look at a scenario, and I think it helps me come up with new perspectives on it and be like 'hey, its probably not what you think it is, don't worry about it, move on.' And I feel like I'm coasting, able to stay in the moment more. It's really, really interesting."*
>
> - *Participant 13*

An important component of micro-dosing was the participant's social network. Participants who micro-dosed would talk to friends and compare results from their micro-dosing practices.

> *"I learned about it from one of my friends back in Calgary. I probably talk to, I talk regularly to about 6 or 7 people who micro-dose regularly or have micro-dosed before."*
>
> - *Participant 6*

Several participants said they would never try micro-dosing, as the purpose of micro-dosing was not relevant to them. Several participants doubted the benefits of micro-dosing, postulating that people who micro-dose may only be experiencing "*placebo effects*" (*Participant 2*). Others cited financial and logistical restraints for micro-dosing, saying they have difficulty sticking to dosing schedules or that they would prefer to use their money to take a large, trip dose. For example, one participant had tried micro-dosing in the past and was interested in resuming the practice again. However, based on previous experiences, he was concerned his personality was incompatible with micro-dosing. He reported some beneficial outcomes from micro-dosing, including in the treatment of his OCD. The logistical aspects, including finance and dosages were a barrier. To illustrate:

> *"Earlier in the semester, first semester, I tried micro-dosing. I have a very addictive personality. Like, I smoke a lot of weed. It's terrible, it's very worrisome, it's like a cry for help. It's not good. So, I tried to micro-dose. I live in Vancouver but I came up here with like 3 ounces of mushrooms, and I wanted to micro-dose and make them last a prolonged amount of period, the first semester. And I ended up eating them, and being like 'oh, they don't taste bad at all I'm sure I'm not eating that many.' And then I end up macro-dosing [trip dose] and I'd be in class, and be 'why am I sweating and thinking about death and my fucking family? Sorry if I let out swear words…so yeah, I kind of – I tried micro-dosing, the few times I did micro-dose, it worked! I have really bad OCD. It's not*

> *like – it's weird OCD. It's not the type where stuff has to be cleaned and organized, a lot of it is sounds, and light switches, and the way something feels. So, I've been on my OCD meds since I was 13 or 14 and I hate – I really don't like them. My meds have decreased but I kind of tried micro-dosing in the first semester…to counteract with the OCD and they kind of worked."*
>
> *LS: "Are you still micro-dosing now? Or is this something you've phased out?"*
>
> *"I'm broke and I don't have any mushrooms on me, but I am definitely still open to the idea – but, I think what's important for me to remember is I have to say – like, if I'm micro-dosing, I have to actually micro-dose. I can't just eat 3 grams of magic mushrooms, then go to class and have a panic attack, midway through, because that – that happened a lot."*

- *Participant 20*

Magic mushrooms were used as functional tools with therapeutic and self-enhancement contexts. Multiple participants micro-dosed, and several others had previous experience. Among this population, micro-dosing was not an uncommon practice, the majority of participant knew people who followed a micro-dosing protocol.

Post Trip Impact

The theme *post-trip impact* involves the period following the magic mushroom trip. For many, magic mushroom experiences created outcomes that participants continue to feel impacted by in the following weeks (and for some, years). There are three subthemes in this section: (1) transformation; (2) learning experience; (3) social intimacy.

Transformation

Multiple participants spoke about how magic mushroom changed something within them, and how they felt like "*a different person*" (*Participant 17*). After they took magic mushrooms, they felt an immediate change that has lasted in the long term. One

participant described her experience of doing magic mushrooms and acid at a music festival as, quite literally, saving her life:

> *"One of the reasons I do mushrooms is that it provokes a lot of thoughts, and one of the thoughts that came to me was that I needed this. I needed to feel depressed in order to love life everyday I needed to feel how low it can be, so that I can feel how good it is to be – I don't want to say high as in drugs, but high as in life…After [four day music festival] I felt so surreal, and I felt like I was living this life that I couldn't put words to…So as I'm thinking and talking about my thoughts out loud with [friend] – I definitely have no filter either, so when I think something it just sort of comes out. So when I was talking to her, especially after four days of doing acid and mushrooms, you're definitely still feeling in two or three days later. I was talking to [my friend] and I said the sentence, I said the sentence that was stuck in my mind and I felt unease until I finally put words to it. And when I finally said it, I said,* ***'I feel like all those times I tried to kill myself never worked for this reason.****' And after I said that, everything – I balled my eyes out, I cried so hard, but I felt so true and I am never going to forget that. I am never going to forget feeling that. Part of my thought, oh, maybe it was just the drugs, but part of me is like, no, because I'm conscious on them."*
>
> *LS: Has that feeling stayed true?*
>
> *"Yeah. Any I don't just say that to everybody. But I say it to myself every day. Every day I wake up now, not just after [music festival], but feeling so alive right now is the reason why it never worked. And I'm so glad it never worked. I tried. I tried for months, for a year and a half to try and die every single night and nothing worked, nothing fucking worked, and I realized that there are so many reasons why [it didn't work] and it makes me so happy.* ***I feel like I would not have been able to make that sentence without the substances I was doing****. I don't want to glorify them, because, you know, its good to be sober."*

- *Participant 1, bold emphasis added*

This same participant continued and clarified that she does not rely on magic mushrooms for depression alleviation completely, but that she feels magic mushrooms *"…brought me the point to accept that and I feel like it really, really, brought me forward in life. I feel like I have a head start, basically*." For some, it was the happiness and clarity they

experienced while on their magic mushroom trip that precipitated the change they later applied to their everyday life:

> *"I also feel like it pushed me mentally after that [first magic mushroom trip]. I was talking about things and realizing how happy I could be…that certain type of happy made me push myself to be like 'ok, you can get back to that.' I started a huge self-love journey after that and just realizing some people are more toxic for me. I always think about my first trip epically because I think made me – I was just so incredibly happy I was crying."*
>
> - *Participant 2*

For some, this transformational shift came from being introspective, and re-evaluating pre-conceived notions and concepts. One participant explained:

> *"With mushrooms I sort of just discovered – you know, everyone has to – so – everyone says that things can make you happy and just things, people, being in relationships and what I realized in mushrooms was that I couldn't – just things, stuff, could not make me happy.* ***And real love, was just like, it wasn't just what I could give out to people, it was inside, it was already within me.*** *So, it's like, if I was going to be happy it wasn't going to be though dating someone or having more money or being in a place where I was surrounded by friends, it was just going to be accepting myself so I started looking more into it after that.* ***That was very - you can call it life changing I guess****."*
>
> - *Participant 9, bold emphasis added*

The same participant continued:

> *"…And that happened and I started reading less books about how I can become an investor on wall street and more I about how I can just be happy with who I am, regardless of where I am….when I look back on it, I was suffering because of my desire to be a part of a community or to have friends around, or to go out on weekends, all these superficial things. And I realized that what I was looking for was there the whole time."*

Some ascribed long-term personality changes to their magic mushroom use:

> *"**It's changed me. I'm not the person I was before I did it because the person I was before, prior to doing mushrooms**, I was a very short-tempered person, I had a temper, got easily aggravated a lot. And I just wasn't like a very, I wouldn't say a very good person for – I was always kind of like a grump around my family and stuff and it was just like – I don't know why, it was just the way I was. And then after doing [magic mushrooms] I learned to appreciate a lot of everything in life…it brings happiness and just through being happy I just felt like I treat people with more, just being a more genuine happy person and that affects the people around you…I just feel like being a more happy person. And through that I've just been more aware of – awareness is huge. I don't know how many times I've said like **awareness or being mindful of how you interact with people, how you influence them**, and now just being more, just I guess – before I was very careless in that. **Emotions got out of control and I didn't know how to regulate.** Now it's like, **I have more control over my emotions though meditation, through psychedelics, and though just being more calm** and being more calm you can assess the situations more logically as well as treat people with care as opposed to just acting on impulse or in a cathartic kind of manner."*
>
> - *Participant 12, bold emphasis added*

Some participants were cautious to completely ascribe their transformed mental state to their magic mushroom trip. A participant, who had depression, remarked that since her trip she felt "*less chained to her thoughts*" but needed to "*sit with it a little bit longer*." She described her trip, and how it made her reflect on her depression:

> *"In the moment I was mostly thinking about the impacts of….so I did have a plan last year to end my own life, which was very heavy for me. And so that is always in the back of my mind. Not an active part of my day to day life tight now. I'm actively really working hard to change that which was a huge reason I wanted to try this [magic mushrooms] in the first place. A lot of my trip was centered around thinking about that and the impacts it would have on my family, on the friends that I've made, and on the future that I was to have. Which was interesting because I didn't think [the trip] was going to be about [that]."*
>
> - *Participant 18*

This participant told me that she got "*a lot more that [she] expected*" out of her magic mushroom experience, explaining it was a spiritual and introspective experience, but also that she was cautious to ascribe her post-trip mindset to magic mushrooms exclusively. Regarding gender, female participants were more likely to report magic mushrooms as positively affecting depressive symptoms.

Participants spoke about how magic mushrooms made them reflect on societal pressures and expectations, and how taking magic mushrooms shifted the value they previously placed on certain things: "*I think mushrooms have definitely helped my self-esteem because I've been able to love myself a bit more and let go of certain societal things*," (*Participant 2*). A common experience was re-evaluating what forces participants let influence their life and decisions:

> *"…one thing I distinctly remember thinking about is the way I kind of rely on other people's opinions of me. So, I was just wandering around, thinking about this and thinking about various experiences from my life and it was like a whole new perspective on this…and then just after that I started seeing it in my life and kind of trying to consciously change that into what I thought was a better way to think about people's opinions."*
>
> - *Participant 7*

Many participants were at critical moments in their lives. They were completing their degrees and moving into the next phase of their life. One participant explained how magic mushrooms have helped him re-evaluate his future:

> *"After starting to do psychedelics I've sort of let go of the things that maybe I don't really want to do, but I was just doing because everyone said I should. And you know, my school work, to be honest, is one of those. I don't really want to be an engineer – I sort of was just good at math and physics, and my teachers told me to do it. So, I'm still doing it, I'm still going to get that degree, I don't*

> *want to let down everyone. But I'm starting to realize that my focus is more apparent in things like my writing – I do a lot of writing now."*

- *Participant 9*

Other participants described how magic mushrooms have changed their perspectives and the way they understand the world around them. For example:

> *"It's hard to put in words. Just knowing that there was so much more to our experience. That our little three-dimensional human world. And in just our three-dimensional physical world that we know about in physics for example, there's just stuff that goes beyond what science can explain. And I'm in physics and I take math, so I know a lot of people may not share that view in that discipline but just being immersed in that and also seeing this makes me realize, ok there's non-physical ethereal things that I don't know if we'll experience with our tools or explain with our tools."*

- *Participant 16*

These participants spoke about how since following their mushroom experience, their values, attitudes, and outlooks on various concepts changed. They viewed their positions within society differently and re-evaluated their personal perspectives.

Learning Experience

Overwhelmingly, participants did not associate direct harms with magic mushrooms. When asked if there are any harm associated with magic mushrooms, participants would explain that there are no harms or would explain the harms as being outweighed by the benefits. This is because participants viewed bad trips or challenging experiences as a learning opportunity. One participant illustrated several of the sample's common responses to harm within one statement. This participant explained that the magic mushrooms themselves are not harmful, but harms can be caused by contextual forces. He also described the *self-regulating* (Johnstad, 2015) aspect of magic

mushrooms, in that a positive experience requires preparation and moderation. He continues that adverse events have ultimately been positive learning experiences. To illustrate:

> *"For harms I would say – **the psychedelic by itself isn't harmful, if you know when to do it.** That's my opinion. Anything in moderation is fine. That's for the most part of things, but especially psychedelics. Actually, I feel like you can use all the time if you wanted to but very spaced apart, very strategically. You know when you took it last, and you know when you're going to take it next. **It's a very calculated kind of thing**…but harmful in terms of mentally – I mean, **I've had bad trips before, like I've told you. It feels like you're losing - you're going insane, like you've lost your mind! But I haven't experienced that much harm from it.** Not to say it's not harmful, but I myself have not experienced that much harm from it. So far, **the benefits have outweighed the negatives,** for me, anyways. I guess the benefits so far are just being more open to new experiences, just to be mindful of everything more. Just being a more happy person. Taking things slow – as oppose to like, 'oh you're a student, you need to do like' – you have the whole spiel on that, you have assignments that that due, and you've got like, I don't know how many things you have to do, you need to get shit done, but it's like, enjoy the process I guess."*
>
> - *Participant 12, bold emphasis added*

Other participants indicated they had experienced bad trips but did not view these as bad trips as harmful. For example:

> *"I'm not saying every mushroom experience is fun by any means. I've for sure had my set of experiences that were difficult and overwhelming and as a great of a place [magic mushrooms] can take you to, with the wrong mindset or other distraction [magic mushrooms] can definitely out you into a very trying place, for sure. **But I think that's beneficial too. It's kind of just letting go and surrendering to the experience. That's a lot of what life is.** You've just gotta – whatever happened, happens and there's things you can do along the way to make it a little easier on yourself. That could be the people that you're with or the environment that you're in or just learning to direct your thoughts….there are experiences that I look back on and even reflecting on them now I kind of glean more from certain experiences."*

The same participant continued:

> *"...In my experiences I've had times where I maybe while I was on the mushrooms and thought 'oh man, I'm in this certain situation now' and I wish maybe I had thought better, or had planned differently, of course. But all that comes with experience I think...I've never had a particularly harmful, experience and that might just be the type of person I am too. I look back at most events in my life, and even when they may have been harmful at the time, I think that its benefitted me in the long run."*

- *Participant 8, bold emphasis added*

Another participant explained the beneficial outcomes of his bad trip, with reference to negative experiences with alcohol:

> *"I took something away from it and I grew from it and I think I matured in some way. Whereas I couldn't say that I've gotten belligerently drunk and forgot the night and I took something away from that. Absolutely not. Mushrooms, no matter what the experience is, I think you're going to benefit in some way. There's always some silver lining which you can't say that about many other things in life."*

- *Participant 20*

Participants associated few harms with the magic mushroom itself. Harms, if any, had to do with indirect harms, like social stigma:

> *"I don't think you can possibly have harmful experiences but in my opinion I've wither been somewhat – I either - I've never particularly had an extremely harmful situation in my own experiences, but I also think they can be harmful in terms of...social stigma and stuff like that, in terms of your peers and also your family. You can definitely be on substances like that and if you're not in the right environment things can happen that involve hurting yourself or, God forbid anyone else."*

- *Participant 9*

Some noted that there can be harms associated with being in the wrong setting or undertaking an unsuitable activity. One participant explained:

> *"I can't say there's any immediate harms. There's obviously – there could be indirect harm. Make sure you in a setting that's – you don't want to be walking downtown because you could get hit by a car or something. You don't want to be in a random forest. You don't want to be going swimming or anything. So, yeah, there's definitely ways you can indirectly harm yourself, but I would say the effects of your body are so minimal compared to tobacco or alcohol."*

- *Participant 7*

Adverse effects, which could be considered aspects of a bad trip or a harmful experience were a routine aspect of a trip for some participants. One participant described that his come-ups tend to be emotionally difficult, but he views these as beneficial, and part of the overall experience:

> *"The big thing that I've noticed with not just the mushroom trip but mushroom trips in general for me is I'm usually – like its usually very difficult to get through the come-up for me. Difficult in the sense that I'm having a lot of negative thought about myself and a lot of negative perceptions of things I've done in the past. That's actually very routine for me on mushrooms because I figure that it's just like, you know, during my life- most of my time I've spent sober I'm just thinking in very, unconsciously negative ways about myself and other things so it's like when I'm, doing mushrooms it feel like those are immediately energized at the beginning but if I'm very patient with myself and I kind of allow myself to work through them and allow a more positive rationalization of things, where or like, self-deprecatory loops and things like that, and worries in regards to my health, productivity, and everything like that - sexuality even. The first hour or so of the trip is kind of me working through those negative feeling but if I'm patient within it I come to the positive rationality of that negativity and then after that the rest of the trip is usually a blast."*

- *Participant 6*

For these participants, magic mushrooms were not considered a harmful substance. There was an infallible quality to magic mushrooms, with either the context of use being responsible for the bad trip, or the bad the bad trip itself being conceptualized as a positive experience.

Social Intimacy

Lastly, a *post-trip impact* that participants shared was feeling a sense of closeness with the people they did magic mushrooms with. One participant spoke about how he and his friends bond through psychedelic use:

> *"There's a certain level of bonding that occurs when you trip with someone and you experience that sort of thing that you experience, and they're experienced something very similar and you're just doing it together. There's a certain level, a certain sense in that where you couldn't replicate that with someone else – especially if you're already very good friends before. I always tell people that my friends are the family that I chose, so it just very much makes sense like – there's nothing more meaningful to me in the world then sustaining relationships with that group of friends. They've just been through - we just don't – this has gotta keep going."*

- *Participant 9*

Participants explained that magic mushrooms were a site of increased sociality, and partially attribute this to the power that psychedelics have. Experiencing the intense effects of psychedelics with friends increases closeness. For example:

> *"…the social aspect of it – probably the best memories of my life have been under the influence of psychedelics, so it's just like a very influential experience, and you're sharing it with the people who you deem as very close to you and you're in this trip together and you share these experiences with them, and you're bonding and it just brings people closer together, right. There's a social aspect to it."*

- *Participant 6*

Participants reported that magic mushrooms made them feel more open, which they applied to their relationships. One participant spoke about how she uses magic mushrooms with her boyfriend, and how this increases their emotional intimacy: *"it breaks down that remaining wall that might be there. We are very open with each other anyways, but it's hard to be like, 100%, 200% open*" *(Participant 11).*

Some participants expressed that the social intimacy they experienced was not necessarily a beneficial experience. For instance, one participant spoke of how doing magic mushrooms with a certain person made her realize that person should no longer be in her life:

> *"And then what I realized as well is that of all that the only person that [wasn't annoying me]- I thought because of our shared experiences, our friend wasn't annoying me because of that – it was retrospective, that I realized, the other two friends [who were annoying me] are actually just really not good friends of mine. And they're not good, they don't treat me well, and that trip was trying to show me that. Months later more things started happening, and I put the all the dots together, and I was like, no really, from before the trip, from during that trip, to now, even after that trip, it really showed that these people were not treating me well at all throughout. The only person that was being a good friend was the one who wasn't freaking me out through that trip."*

- *Participant 17*

In sum, the effects caused by magic mushrooms increased social intimacy, through sharing a powerful experience or through applying the emotional effects of increased openness to existing relationships. The intimacy created by a magic mushroom experience also revealed relationship dynamics to other participants, which they applied when reflecting on their social circles.

Summary

This chapter presented the results of quantitative and qualitative analysis. Quantitative results showed no statistically significant trends between year and rates of use, availability or knowledge. Within sociodemographic analyses, gender was the only statistically significant variable associated with magic mushroom use, with self-identified males being more likely to use magic mushrooms than their female counterparts.

Qualitative thematic analysis of analysis of 20 semi-structured interviews revealed dynamic and strategic patterns of magic mushroom use. Major themes generated were: shifting understandings, optimizing experience; context of use and post-trip impact. In *Chapter 5: Discussion and Conclusion* quantitative and qualitative results are integrated.

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Chapter 5: Discussion and Conclusion

This chapter integrates the results of my quantitative and qualitative analyses, pulling together diverse threads into a unified discussion. Considered together, the results indicate diverse, mainstream and planned substance use behavior. Features of magic mushroom use in Victoria suggest the process of *normalization* (Parker et al., 1998; 2002); however, the findings support *differentiated normalization*, where "different types of drugs and different types of drug use may be normalized for different groups" (Shildrick, 2002, p. 36) and *assimilative normalization* (Sznitman, 2008) where substance users "accept and draw on mainstream representations of drug use as a stigmatized activity in producing and reproducing drug-related practices and discourses" (Pennay & Moore, 2010, p. 559).

This chapter is divided into three sections: (1) *integrating results;* (2) *normalization: a process;* and (3) *concluding remarks.* In the first section I bring my quantitative and qualitive results together and re-examine the research questions. Within this section I spend considerable attention on the *micro-dosing* results within the qualitative analysis as this was among the more novel findings in this study. Although micro-dosing was not practiced by the majority of the sample, the lack of literature on this emerging practice warrants additional discussion. In this chapter's second section I argue that the magic mushroom use investigated in this study is characteristic of the process of *differentiated normalization* and *assimilative normalization.* Lastly, I conclude this chapter with a discussion of the relevancy of this research to the current psychedelic revival, address the research limitations, and outline implications for future research.

Integrating Results

With reference to the *normalization thesis* (Parker et al., 1998; 2002), my research questions were as follows: (1)*What is the prevalence and sociodemographic profile of recreational magic mushroom use and users in in Victoria, BC?* (2) *What are the substance use practices among recreational magic mushroom users?* (3) *What are the attitudes and meanings associated with magic mushroom use?* Below, each question is considered by sub-section.

Prevalence and Sociodemographic Profile

Prevalence and Availability

Epidemiological results demonstrated high rates of magic mushroom use and no demographic sub-group affiliations. The results are cautiously suggestive of a normalization process. Beginning with rates of use, quantitative results show lifetime prevalence of magic mushroom use was not below 86% between 2008 and 2016. Similarly, the rates of use within the last 12 months were not below 75% between 2008 and 2016. There were no statistically significant associations between the year and the rate of use, nor a linear trend. In comparison with other normalization studies (see: *Snitzman & Taubman, 2016 for systematic review of normalization thesis studies*), a 40% lifetime prevalence rate within a general population is considered evidence for normalization.

The importance of a linear trend has been debated. Within the original *normalization thesis,* linear upward trends were considered to be crucial evidence for the normalization (Parker et al., 1998). Subsequent research (Measham & Shiner, 2009; Sanberg, 2012; L. Williams, 2016) has suggested prevalence trends are an inappropriate

measure of normalization. Increased prevalence may be an outcome of normalization, rather than a necessary condition for normalization.

Sanberg (2012) draws on Shiner and Newburn (1997) who caution that in the process of normalization, it is important to not confuse prevalence and normalization, as what is considered normal behavior is not solely dictated by substance use levels, but by substance use meanings and how the substance user is accepted by their culture and society. A substance can be frequently and widely used without a cultural acceptance of the substance or detachment of stigma-related associations (e.g. tobacco use in some environments/cultures). Instead, evidence of social or cultural acceptability and high substance availability are considered more compelling evidence to indicate *normalization* (Measham & Shiner, 2009; L. Williams, 2016).

Regarding magic mushroom availability, results indicated high levels of access (68.7% indicated it would take no more than a day to obtain the product). Availability is comparable with other studies (Duff, 2005; Parker et al., 1998, 2002). Wide availably challenges the traditional deviant associations of drug-seeking behavior where the substance user is desperate to find a substance source. When the availability of a substance is widespread and accessing the substance is relatively effortless, the user does not associate their action with criminality (Hathaway, 2004). This leads to the substance user positioning their behavior as non-problematic (Bahora, Sterk & Elifson, 2009; Riley Thompson & Griffin, 2010). The lack of statistical significance between years and absence of linear trends can be partially explained by the study setting, where magic mushrooms grow abundantly in the wild, and by some accounts, in public parks or other

urban settings. Participants did not pick their own mushrooms but would reference Victoria's environment when discussing wide-spread availability.

Sociodemographic Profile

Due to sampling strategies, the vast majority of the quantitative and qualitative samples were university students, while a small minority identified themselves as non-students and employed full-time. Within the quantitative sample, the ethnicity diversity mirrored that of the City of Victoria (Statistics Canada, 2017b), indicating an agreement between the study sample and the wider study setting. Further, in sub-sample comparisons between LUs, PYUs and NUs, the only statistically significant sociodemographic factor associated with magic mushroom use was self-identified gender, with males being more likely to use magic mushrooms than females.

Population demographics are a key feature of group-identity and affiliation within the *normalization thesis* (Parker et al., 1998; Measham & Shiner, 2009 and *differentiated normalization* (Snitzman & Taubman, 2016). Socio-demographics speak to sub-cultural affiliations and defined group-level use. The lack of socio-demographic differences within this sample is considered evidence of diverse and mainstream use (Parker et al., 1998).

Speaking to the only statistically significant result - the gendered difference in rates of use - is unsurprising, due to males reporting higher levels of substance use within this age group (Chen & Jacobson, 2012). Per Measham and Shiner's (2009) *differentiated normalization,* substance use is bounded by gender constraints. Other normalization studies have demonstrated similar gendered differences in rates of use (Cristiano, 2014; Hathaway et al., 2015; Measham, 2002). These gendered differences have not been

interpreted as evidence against the substance use normalization. Instead, gendered differences are considered demonstrations of socially and culturally constructed boundaries, differentiating the normalization process.

Difference in gendered substance use rates can be explained through referencing *femininity*. *Femininity* is the behaviors, expectations and roles associated with womanhood which guide the actions, thoughts and feelings of women and females (Mahlik et al., 2005). Femininity and feminine socialization are associated with reduced risk taking, leading to lower rates of (illicit) substance use among self-identified females (Peralta et al., 2016). Females are subject to gender expectations largely at odds with the cultural and social image of substance use. Substance use is viewed as irrational and risky (Copes, 2016), in conflict with the traditional female role which values control, caregiving qualities, and permissiveness (Hathaway et al., 2015).

Magic Mushroom Practices and Behaviors

Controlled Substance Use

Participants within this study described an involved preparation process and placed a high value on organizing safe and controlled magic mushroom experiences. Partially explained by the self-regulatory nature of psychedelics (further supported by participants' focus on *set* and *setting*; Johnstad, 2015), this also supports a process of *assimilative normalization* where participants describe their substance use practices with reference to socially accepted parameters of conduct (Rødner Snitzman, 2008). *Assimilative normalization* is, "achieved through *boundary work* or the processes of setting up, learning, and adhering to rules for how to keep drug use within the boundaries

of what is considered normal and acceptable" (Sznitman & Taubman, 2016, p.705, citing Lamont & Molnár, 2002).

Within this study, participants articulated high knowledge levels, supported scheduled use, and emphasized the importance of preparing for magic mushroom trips. Specific to knowledge levels, the qualitative sample exhibited higher rates of self-perceived knowledge levels over the quantitative sample. This was an expected result, as the quantitative dataset recruited recreational substance users who may have only used magic mushrooms once in their lives, whereas the qualitative sample specifically recruited more recent magic mushroom users, which likely resulted in the qualitative sample having increased experience and a stronger relationship to magic mushrooms.

Participants reported planning their trips far in advance, and often scheduling their trips around school commitments. The preparation and planning of magic mushroom use around mainstream, conventional lifestyles legitimizes use. The user continues to meet social and cultural obligations and exhibits the ability to control and moderate their substance use in a way that will not infringe on mainstream responsibilities. This was further reflected in the social aspect of preparation. Similar to Johnstad's (2015) psychedelic study, participants encouraged their peers to devote considerable energy to preparation, and experienced magic mushroom users behaved somewhat like teachers to their friends, emphasizing the importance of research and sharing information. In some cases, preparation was a social endeavor, with groups of friends buying groceries and constructing safety mechanisms (i.e. trip sitter, activities) together (Panagopoulous & Ricciardelli 2005). This demonstrates the social value of preparation and knowledge

within the sample, and the importance of establishing control over the trip, which is an experience where the user is often unable to control thoughts and feelings.

Applying a gender lens, within the preparation process self-identified females more often reported constructing safety mechanisms beyond those of male participants. Measham (2002) contends that substance using females adopt a "controlled loss of control" (p.349) when using substances. The prevailing social attitudes surrounding femininity value self-control, respectability and self-presentation in females, which contradict the state of altered consciousness (Measham, 2002). Safety mechanisms, and the additional planning that females go through is a response to structural and social forces that dictate acceptable expressions of femininity (Measham & Shiner, 2009; citing Messerschmidt, 1993). Hathaway et al. (2016) argue that traditional female gender roles experience increased stigma attached to substance use, which safety mechanisms or the production/evidence of controlled use can mitigate.

Substance use normalization was differentiated by gendered experiences and substance use practices were rationalized through appealing to mainstream values. This supports both *differentiated normalization* (Shildrick, 2002; Measham & Shiner, 2009) and *assimilative normalization* (Rødner Snitzman, 2008). This process of demonstrating control and responsibility in substance use practices is well-founded within the literature (see: Asbridge et al., 2016; Bahora et al., 2009; Brouchu et al., 2011; Hutton, 2010; 2009; Lau et al., 2015; Pennay & Moore, 2010; Williams & Parker, 2001). Normality is "…accomplished through observance of 'rules' of tacit knowledge that enables predictable constructions of reality," (Hathaway et al., 2011, p.455). As a result of adhering to societal standards of behavior, substance use is uncoupled with risk concepts,

reducing stigmatized associations (Rødner, 2006). This is a way of increasing *social accommodation*, or the acceptability of substance use among the general public (Parker et al., 2002; L. Williams, 2016). As per Riley, Thompson and Griffin (2010): "controlled consumption is appropriate consumption" (p.448). Substance use practices and behaviors were described through emphasising socially and culturally valued behaviors, demonstrating the nuances of negotiating a deviant practice into the mainstream.

Context of Use

There were observed boundaries of use within the sample, acknowledging of the contextual nature of appropriate substance use (Aldridge, Williams & Measham, 2011; L. Williams, 2016). Specifically, there were three contexts and/or motivations of use observed within the qualitative recreational magic mushroom user sample: transformation, leisure/pleasure, and micro-dosing. This is congruent to the limited recreational magic mushroom and psychedelic literature, where three over-arching contexts or motivations of use are identified: spiritual, therapeutic and leisure (Andersson et al., 2017; Carhart-Harris & Nutt, 2010; Hallock et al., 2012; Riley & Blackman, 2008).

Regarding spirituality, or mysticism, there was some evidence of this context of use and theme within the qualitative sample. However, spirituality or mysticism was not a common motivator. This challenges previous studies, where spirituality and mysticism were cited as key motivations for magic mushroom use within both university student and general populations (Carhart-Harris & Nutt, 2010; Hallock et al., 2012). Within the qualitative sample, spirituality and mysticism were explicitly spoken about by three of 20 participants. Multiple other participants described experiences that could be understood as spiritual or mystical, but the participants did not explicitly frame or articulate their

experiences or outcomes within spiritual and mystical parameters. Instead, they described feeling personality shifts, increased openness, and long-term happiness, or other effects associated with mystical experiences (Griffiths et al., 2016). The lack of spiritual description may be due to the low religious participation found within current emerging adult populations (Arnett & Jensen, 2002; McNamara Barry & Nelson, 2005).

There were several participants who spoke to anxiety or depression alleviation following a trip. I am hesitant to draw any strong conclusions from these experiences, as I am not a trained mental health professional, and I recognize that anxiety and depression are complex and individually-specific issues. However, it is important to note that these participants *perceived* magic mushrooms as being the reason they felt positive mental health outcomes following their trip. Similar to other studies focused on mental health (e.g. Carhart-Harris et al., 2016; Griffiths et al, 2014), the use of magic mushrooms generated an experience where participants confronted trauma and adverse memories. As noted by one participant, the magic mushrooms staged a therapeutic intervention, enabling the participant to deeply reflect on their past and associated emotions.

Importantly, all participants who experienced mental health changes as a result of their magic mushroom trip reported being with people they trusted. They relied on their support to deconstruct the meaning of their trip after the effects of magic mushrooms had worn off. This provides some support for Johnson and colleagues' (2008) contention that therapy is needed in conjunction with psychedelic therapy. The social support can be conceptualized as a quasi-therapy, in that it created a trusting, open atmosphere, and gave the participant the time and space to de-brief following their trip.

Turning to leisure, participants within this study reported using magic mushrooms for the purpose of pleasure and taking a time-out from the pressures of their everyday lives. This included using magic mushrooms to enjoy music, create art, appreciate nature, or as a social enhancement tool with friends. This context of use is well-supported within the normalization literature (e.g., Aldridge et al., 2011; Measham, 2004; Moore, 2004; Pennay & Moore, 2009; L. Williams, 2016) and is a feature of normalization (Parker, Measham & Alrdidge, 1998).

Within this context, magic mushroom use was an occasional and planned reprieve from everyday responsibilities. The emerging adult life-stage creates a context where substance use can be reasonably accommodated within leisure and recreation without causing negative consequences, as may be seen in adulthood, which is characterized by increased responsibilities (Arnett, 2007, 2015). Participants reported prioritizing their schooling above magic mushroom use, adapting substance use to wider cultural and social expectations of educational success. Measham and Shiner (2009) argue that this planned leisure is a result of the "dominant ethos of productivity" where the individual earns their leisure through being a productive and hard-working member of society (p.504). Planned leisure can be conceptualized as a response to the social and cultural celebration of productivity and work; and accommodated by the unique context created by emerging adult.

Micro-dosing

Six participants reported micro-dosing magic mushrooms at the time of their qualitative interview, and an additional four participants reported micro-dosing previous to the study but stopped the practice due to financial or logistical concerns. This was a

surprising result as compared with the quantitative analysis, which showed limited evidence of micro-dosing within this population. This *discordant* integration result (Fetters, Curry & Creswell, 2013) can be explained, in part, through research phase timelines: the quantitative phase spans 2008 to 2016, and until 2016/2017 micro-dosing was largely a niche practice confined to members of the tech industry in Silicon Valley (Sahakian, d'Angelo & Savulich, 2018). In 2016 and 2017, micro-dosing became increasingly publicly discussed. In 2016, articles concerning micro-dosing first appeared in popular media outlets *Marie Claire* (Malone, 2016), *Vice* (Fisher, 2016), *Huffington Post* (Gregorie, 2016) and *Wired* (Solon, 2016). In 2017, novelist and former public defender Ayelet Waldman's autobiographical account of micro-dosing was published, causing increased media attention, with her experience being featured in *The New York Times* (A. Williams, 2017), *Vogue* (Mechling, 2017) and *The Washington Post* (Krug, 2017). It is reasonable to surmise that the lack of micro-dosing evident in the quantitative results is due to micro-dosing not being a widely known phenomenon or practice at the time of data collection. This is confirmed by qualitative interviews, where participants indicated they had recently stared to practice micro-dosing, and in particular 3 participants cited listening to recent podcasts[16] or reading an article online about micro-dosing as encouragement for them to try the practice.

As discussed in *Chapter 2: Theory and Literature Review*, there are few published studies on micro-dosing within which to ground these findings. The only published study is from Europe, examining micro-dosing practices among 21 participants (Johnstand

[16] Micro-dosing has been discussed on several popular podcasts, including: Joe Rogan Experience (2017); The Tim Ferris Show (2015); The Ezra Klein Show (2017) and; Reply All (2015).

(2018). Reported effects included improved mood, cognition, and creativity, and reduced symptoms of anxiety and depression. Reported challenges included taking too large of a dose or feeling unease about long-term effects. There is some congruence between Johnstand's (2018) findings and results from our qualitative interviews. Our participants reported improved mood, emotional regulation, will-power, creativity and focus. Participants also reported that micro-dosing improved, or counter-acted their Attention Deficit/Hyperactivity Disorder (ADHD), OCD, and anxiety/depression. Our participants' challenges with micro-dosing were logistical, including financial, dosing, and having difficulty following a micro-dosing protocol. Our participants exhibited less concern for long-term harms, which may be explained by the emerging adult life-stage. Arnett (2005) argued that emerging adult is characterized by an unwavering optimism towards the future, where emerging adults believe that "life will work out well for them in the long run, even if their lives are not so good or promising in the present" (p.247). Applied to substance use, emerging adults have an *optimism bias* in that they are unlikely to associate long-term consequences (whether justified or not) with their substance use practices (Arnett, 2005).

Johnstand (2018) likens micro-dosing to human enhancement techniques. There are numerous Human Enhancement Drugs used for a wide variety of purposes, including body builders using anabolic steroids (Monaghan, 2002); or sexual enhancement drugs (Conrad, 2007). Specific to emerging adults, Cognitive Enhancement Drugs (CED) have the highest rate of using without a prescription or not as prescribes as compared with any other life stage. CEDs are prescription stimulants[17] (colloquially called *study drugs*) used

[17] The most common prescription stimulants are Methylphenidate (Ritalin) dextroamphetamine (Dexadrine) and mixed-salts amphetamine (Adderall; McCabe et al., 2005).

in the treatment of ADHD (Sussman et al., 2006). Attending university or college is associated with increased rates of using CEDs (McCabe, Knight, Teter & Wechsler, 2005; Johnson et al. 2016). Reported benefits and rationale of prescription stimulant use include increased concentration, organization, and the ability to study for longer (Advokat, Martino & Guidry, 2008). Within the small participant sample in our study that did micro-dose for school-related purposes, participants reported improved focus, academic discipline and increased creativity. Specifically, our participants reported micro-dosing helped them think about school assignments from different perspectives. In contrast, prescription stimulants are associated with causing reduced creativity (Bagot & Kaminer, 2014).

CEDs may explain the gendered differences in micro-dosing practices. Of our 6 participants who practiced micro-dosing at the time of the interview, 4 self-identified as males. Gender-analysis shows masculinity is associated with greater odds of prescription drug misuse in emerging adulthood (Peralata et al., 2016). This is explained, in part, through feminine socialization which results in reduced risky behavior (Perelta, 2016, citing Courtenay, 2000). Sex-based comparisons have reported males to be more likely to use prescription stimulants than females (Teter et al., 2005; Poulin, 2007).

Regarding motivations, micro-dosing participants' motivations go beyond those associated with of CED stimulants. All participants situated their micro-dosing practices within their non-academic life, citing social and behavioral benefits. One participant, who had ADHD, noted that he preferred to micro-dose over using a prescription stimulant. In addition, therapeutic benefits were cited, participants reported positive therapeutic outcomes in the treatment of their mental health conditions. Similar to other

normalization studies (Mackenzie et al., 2006; Bahora et al., 2009; Harling, 2007; Hutton, 2012; Van Hout, 2011), micro-dosing participants used magic mushrooms as a mechanism that would lead them to attaining conventional goals. Snitzman and Taubman (2016) argue that a feature of normalization is that motivations for substance are associated with 'conventional' goals (e.g. better marks in school, improved mental health), indicating that substance use practices conforms to mainstream values.

Lastly, one feature of micro-dosing warrants further investigation. In tandem to the (public) increase in micro-dosing, Western culture has long maintained strong affiliations to cultural values of productivity and efficiency (Michaei, 2017). Specifically, there is increased attention focused on optimizing individual productivity and efficiency through the *life-hacking* movements, where individuals self-track their lives for the purposes of enhancing productivity (Swan, 2013). Within this movement the brain is an object for potential enhancement, sometimes through the use of substances (Wexler, 2017). The individual, rather than the system, is responsible for meeting the demands of productivity and efficiency. Within this *third wave* of psychedelic research we are seeing an increase in individualistic, functional use. This is in contrast to use within the *second wave* of psychedelic reseach , where psychedelic use was tightly connected to the counterculture, anti-establishment movement. In the second wave, use was a collective identity, with ties to politics and ethics. Substance use normalization is the result of individual- and group-level negotiations within bounded contexts (Measham & Shiner, 2009). Micro-dosing can be thought of as a response to the bounded context of the increase in neo-liberalism, individualistic cultures, and our cultural appreciation of efficiency and productivity.

Attitudes and Meanings Associated with Magic Mushroom Use and Users

Determining the attitudes and meanings associated with magic mushroom use is largely dependent on understanding the identity of users (Aldridge et al., 2011). Within this study, participants described themselves as not being stereotypical substance users. Group and sub-cultural labels commonly associated with magic mushrooms (e.g., hippies) were rejected. Instead, participants described their magic mushroom use in opposition to traditional descriptors of magic mushroom users (e.g.: *I think I'm starting to realize that the people who are doing [magic mushrooms…they're not going to be beach bums, they're still driven, they still make sure they can make an impression on people;" Participant 9*). This is a form of negotiation to achieve legitimization: through opposing the traditional substance use labels and identity, participants reject the cultural stigma associated with magic mushroom users and use (Hathaway et al, 2004).

Achieving an identity of *normal* through rejecting culturally-entrenched meanings of *substance user* and its associations with dysfunction is confirmed elsewhere in the literature as a process of normalization (Bahora et al., 2009; Hathaway et al., 2011; Rhodes et al., 2011; Rødner, 2005). Within this study, participants did situate themselves as conventional members of society, and perceived magic mushroom use as a growing mainstream practice. Bahora and colleagues' (2009) examination of young adult American ecstasy users (n=112) indicated that the perceived level of prevalence within a recreational substance using sample is associated with an increased sense of normality attached to substance use. That is, if the substance user perceives substance as being used by a wide range of individuals, sub-cultural and group-level categorization and associated identities are not relevant. Importantly, this means that the belief does not have to be

quantitatively founded; if recreational substance users believe that there is mainstream use of their substance, they will adjust their behaviors in response (Measham, 2002).

Social networks and connections are important sources of information for recreational substance users. Perceptions of prevalence are largely established by rates of observed use within immediate social connection and larger social networks (Bahora et al., 2009). This is reflected within the qualitative sample, as participants reported a perceived normalization of magic mushrooms, stating that the majority of their social circles used magic mushrooms. I would further extend this to the increased information available on magic mushrooms. Participants reported seeing large amounts of media outputs on psychedelic use. This further establishes mainstream use or acceptance, as positive media attention from influential outlets can indicate a social and cultural endorsement of a practice. The media attention paid to magic mushrooms can further support group-level negotiations of legitimacy, as media outputs have focused on magic mushroom use within unexpected populations, including high-powered business executives (Malone, 2016), mothers (King, 2017) or the scientific application of magic mushrooms, which establishes a therapeutically valid use of magic mushrooms from the dominant bio-medical perspective (see: Fisher, 2016; Gregorie, 2016; A. Williams, 2017).

Normalization: A Process

Hathaway and colleagues (2015) described normalization as a process "highly fraught with contradiction" (p.7). This study is no study exception. The original *normalization thesis* contends for a substance to be considered normalized, "stigmatized or deviant individuals or groups become included in many features of everyday life as

their identities or behavior become increasingly accommodated and perhaps eventually valued" (Parker, 2005, p.205). Participants were included in everyday conventional life, were not associated with a sub-culture, and conformed to standards of Parker et al.'s (1998; 2002) *sensible* use. However, participants reported perceived stigma and judgement within the mainstream. This did not cause them to hide their use, instead they used stigma and judgement as an opportunity to explain their substance use, with appeals to socially valued traits of control and rationality. Hammersley, Jenkins and Reid (2001) suggest being open about substance use within non-users is indicative of minimal social differences between the two groups.

Results further indicated structural determinants and social influences impacted the way in which participants experienced substance use. These data were particularly critical to participants' experiences and cannot be explained through the *normalization thesis* (Parker et al., 1998). There are compelling data from the quantitative and qualitative analysis which support the argument of *differentiated normalization* (Shildrick, 2002) and *assimilative normalization* (Rødner Snitzman, 2008). These are not distinct processes of normalization and can be evident within the same population.

Beginning with *differentiated normalization* (Shildrick, 2002), within the mainstream, some participants reported stigma and judgement, particularly if the participant was female. Similar to other research, these findings support the pervasive role of gender constructs, particularly femininity gender norms and values (Aldridge et al., 2011; Hathaway et al., 2015; Measham, 2002). As compared with males, females within this study exhibited more concern demonstrating control and rationality, and their substance use was met with a greater extent of perceived stigma and judgement. This

indicated that magic mushroom use amongst males may be more accepted and accommodated within the mainstream.

Assimilative normalization (Rødner Snitzman, 2008) was evident through the ways in which participants described their substance use practices. Appealing to mainstream values of control and rationality, participants undertook considerable planning and organization before a magic mushroom experience. Connected to this is the identity of substance users. Participants reported being members of mainstream society, and sociodemographic quantitative results confirm that magic mushroom use was not associated with specific demographic groups (other than males more than females). As members of mainstream society, these participants likely value and uphold the dominant discourse which endorse control, rationality and discipline. Importantly, negotiating substance use and reducing risks does not indicate that the substance users perceives their substance use to be deviant (Aldridge et al., 2011). It does suggest the strong influence of social and cultural forces on substance use practices, causing the participant to produce an opposing narrative of substance use to achieve legitimacy.

Concluding Remarks

Limitations

This study had several limitations. Beginning with scope, the focus of this research was broad. This was due to a lack of prior reseach on recreational magic mushroom use. There was not a study on emerging adult psychedelic use, and high rates of magic mushroom use in the study setting could not be contextualized or explained through referencing the literature. As a result, this research examined multiple domains of use. An outcome of a broad research scope was that detail was sacrificed within some

areas. Future studies should focus on context of use, specifically examining the nuances of micro-dosing and the therapeutic use of magic mushrooms for mental health problems.

Qualitative and quantitative samples used non-probability sampling techniques. This means that findings cannot be generalized. Further, the behaviors and practices captured within this study may not be reflective of the wider recreational user population. However, in keeping with the contextual nature of the *normalization thesis*, I would argue that it is problematic to generalize any study which reports on the social and cultural process of substance use, as individual, group, political, economic and structural factors are location and time dependent. In both the quantitative and qualitative sampling, there was referral within social network groups, which may have resulted in skewed results.

Regarding study design and methods, the timing of exploratory sequential mixed methods phases may have resulted in the quantitative AOD survey missing important micro-dosing trends. As a result, qualitative results on micro-dosing either represented a serious data discordance or was a result of recent uptake within the recreational magic mushroom population. To further investigate the prevalence of micro-dosing within the recreational magic mushroom community, I recommend including explicit questions on past or present micro-dosing practices within future waves of the CISUR AOD survey. Currently the only way to examine micro-dosing practices within AOD is the question: *What number of days did you use magic mushrooms in the past 30 days?* This only captures a limited time-frame of use, potentially missing past micro-dosing experiences that occurred outside of the previous 30 days. In addition, I would recommend including a question which references *micro-dosing* explicitly. Qualitative results indicated micro-

dosing occurred within functional-use boundaries, distinct from using magic mushrooms for *trip* purposes. Dividing these data within AOD may show changes in type of use over time. With reference to the seasonality of magic mushrooms, it is also possible that my decision to recode waves as years resulted in conflating prevalence.

Data used in this study were self-reported, making recall and social desirability bias possible. Recall bias was mitigated within the qualitative and quantitative phases though recruiting participants who had used magic mushroom within a reasonably short time frame. Social desirability bias may have occurred within both phases of research. Generally, social desirability bias is exhibited through under-reporting on sensitive topics. This may have occurred within the AOD study, where participants are divulging a wide-range of substance use behaviors. This is mitigated through reminding the participant that the survey confidential and anonymous, and RAs were trained to be professional and non-judgemental. In addition, the high rates of reported use could be considered evidence that bias did not strongly impact participant's behaviors.

Regarding the qualitative data, I do not think that participants under-reported their magic mushroom use. I anticipated that participants may have felt unease discussing illicit substance use, so I took efforts to create a comfortable atmosphere. Participants overwhelmingly described magic mushrooms as a positive experience, ascribing somewhat of an infallible quality to magic mushroom use. In addition, my openness to magic mushroom use may have biased participants to speak about their use in exaggerated terms. Although I took all participants to be honest and open, it is possible that a combination of me being viewed as a peer, and a non-judgemental environment

created a reverse social desirability effect, in where participants over-exaggerated the benefits of magic mushroom use.

I had chosen to use a Chi-square test for the quantitative analysis. Rather than predict outcomes and establish determinants, I was interested in discerning the relationships between year and variables. In addition, as data were collected within a wave format, I wanted to treat years as independent from one another. However, my use of Chi-Square resulted in some limitations: (1) I was not able to establish causality, (2) Chi-square uses frequency data, and requires 5 or more cases for appropriate use. Per the latter limitation, this resulted in possibly important data being treated as missing (gender: transgender/other) or re-coded into a binary or single variable (ethnicity, visible minorities re-coded). As *differentiated normalization* is concerned with structural limitations, analysing these more nuanced data may have generated relevant results. However, this was not advisable with the limited sample size and statistical power.

I would recommend comprehensive statistical analysis in future studies, combining across study years given the finding of stable trends in use. Specifically, if using the same AOD data, I would use multivariate logistical regression to examine the relationship between prevalence with year and other demographic and behavioural factors in the survey.

Relevancy to the psychedelic third wave

Implications for the current psychedelic wave of research are three-fold. First, this research provides a basis for directing future clinical research. There is a wide variety of recreational experiences which could be examined to assist researchers in understanding the complex responses associated with magic mushroom use. Emerging adult recreational

magic mushroom users reported using magic mushrooms for the treatment of depression, anxiety, ADHD and OCD. Currently, there are no clinical trials completed or in progress for ADHD and psilocybin (depression, anxiety and OCD have been researched, see: Carhart-Harris et al., 2016; Griffiths et al., 2016; Moreno et al., 2006). Treating ADHD with magic mushrooms, or more specifically psilocybin, has not been established within the literature. This presents new directions of investigation. In addition, the wide-spread use of micro-dosing, which was used as both a CED and a therapeutic treatment tool is an important research finding that warrants further research. Micro-dosing practices have gone mostly unexamined within the literature and participants' self-reported benefits of micro-dosing indicate that the use of psilocybin in small amounts for varying conditions should be investigated.

Second, recreational substance users' therapeutic use of magic mushrooms for depression, anxiety and OCD provides lived-experience and relevancy to clinical research investigating these conditions. Breckenridge and Grobbee (2016) argue for pragmatic trials within real-world conditions and increased collaboration with stakeholders (e.g., patients, health-technology accessors and payers) to move from a controlled research setting to real-word application. Incorporating partnerships either with relevant community members or individuals with lived experience has been shown to increase the relevancy, effectiveness and acceptability of the health-solutions (Greer et al., 2018, 2016).

Third, these findings have important implications for psychedelic stigma. Carhart-Harris et al. (2018c), regarding psychedelics, argued that a negative stigma is attached to psychedelics, which impacts the *cultural feedback loop* and therefore impacts public

opinion, media representation, user experiences, and long-term outcomes. I contend that lack of engaging and recreational user representation within this reseach field is only adding to the stigma. A substantial part of the stigma is drawn from the 1960s sub-cultural affiliation with counter-culture and anti-establishment. Through supressing current depictions of magic mushroom users – many of whom ae practice sensible use and self-identify as members of mainstream society - the meanings and identity associations are lost, and current users experience stigmatization based on an identity that is not congruent to them.

Conclusion

This mixed-methods study described a population that is rarely acknowledged within mainstream culture. This study found high rates of use and dynamic use practices and behaviors. The experiences of participants indicated substance use practices and behaviors are influenced by societal expectations of responsibility (particularly for women), structural forces and identity formation. These findings suggest that defined distinctions between deviance and acceptability, or normal and abnormal, are not relevant within this population, and a more nuanced approach which examines a plurality of normalization experiences is appropriate. Importantly, results showed that the sub-cultural, anti-mainstream, counter-culture meanings associated with magic mushroom use are largely unfounded. This has created a false distinction of rationality and therapy between the clinical and recreational uses. Clinical use is conceptualized as legitimate and controlled, whereas recreational use is considered deviant and unconventional, even when used for the same purposes such as enhancing mental states or treating complex mental health conditions. In sum, normalization is a complex process composed of

divergent experiences (Hathaway et al., 2014). Future research should continue integrate multiple perspectives and explore the nuanced differences between the intersections of stigma and structural forces.

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Appendices

Appendix A: Study Ethics Certificate of Approval

University of Victoria
Office of Research Services | Human Research Ethics Board
Michael Williams Building Rm B202 PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
T 250-472-4545 | F 250-721-8960 | ethics@uvic.ca | uvic.ca/research |

Certificate of Approval

PRINCIPAL INVESTIGATOR:	**Lindsay Shaw**	**ETHICS PROTOCOL NUMBER:** Minimal Risk Review - Delegated	**17-146**
UVic STATUS:	**Master's Student**	ORIGINAL APPROVAL DATE:	02-Jun-17
UVic DEPARTMENT:	**INTD**	APPROVED ON:	02-Jun-17
SUPERVISOR:	**Dr. Eric Roth**	APPROVAL EXPIRY DATE:	02-Jun-18

PROJECT TITLE: **Magic Fungus: Magic Mushroom Use in Victoria, British Columbia**

RESEARCH TEAM MEMBER Eric Roth (Co-investigator, UVic)

DECLARED PROJECT FUNDING: **SSHRC, Joseph Bombardier Canada Graduate Scholarship-Masters (CGS M)**

CONDITIONS OF APPROVAL

This Certificate of Approval is valid for the above term provided there is no change in the protocol.

Modifications
To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.

Renewals
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

Project Closures
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.

Rachael Scarth

Dr. Rachael Scarth
Associate Vice-President Research Operations

Certificate Issued On: 02-Jun-17

17-146 Shaw, Lindsay

Appendix B: Quantitative Instrument, Magic Mushroom Section

University of Victoria | Centre for Addictions Research of BC

Alcohol and Other Drugs (AOD) High Risk Population Survey

Cohort:

☐ Adult
☐ Youth
☐ Recreational Adults

SURVEY NUMBER: ☐☐

ID CODE: ☐☐☐☐☐☐

For ID code, enter the first 3 letters of participant's mother's maiden name, followed by the first three letters of the month the participant was born in.

Interviewer: .....

Date: ..... / ..... / ..... (day / month / year)

Interview Site:

☐ Rock Bay Landing
☐ Our Place
☐ AIDS Vancouver Island
☐ Youth Empowerment Society
☐ Out of the Rain Shelter
☐ CARBC
☐ Coffee Shop
☐ Camosun College Campus
☐ Uvic Campus

REFERRAL METHOD:

Primary Referral..... ☐
Referred by Prior Subject..... ☐

G.07 Magic Mushrooms Use, Availability, Price & Purity

G.07.01 Have you EVER used mushrooms in your lifetime?
(*Cross-check with response given in B.01*)

☐ Yes
☐ No (SKIP TO next section)
☐ Don't Know (SKIP TO next section)
☐ Refused (SKIP TO next section)

G.07.02 Where were you the MOST RECENT time you used mushrooms?
(check ALL that apply)

☐ My own home
☐ My partner or lover's home
☐ Relative's home
☐ Friend or acquaintance's home
☐ Dealer's home
☐ Party at someone's home
☐ Rave / dance party / music festival
☐ Restaurant / cafe / coffee shop
☐ Night club / bar / pub
☐ Live music event (e.g. band or concert)
☐ School / college / university
☐ My workplace
☐ Public place (e.g. street, park, alley, mall)
☐ Outdoors in nature (e.g. at an event)
☐ In a vehicle (as a passenger)
☐ In a vehicle (as the driver)
☐ Other (specify) _____

G.07.03 Have you used mushrooms in the PAST 12 MONTHS?
(*Cross-check with response given in B.01*)

☐ Yes
☐ No (SKIP TO next section)
☐ Don't Know (SKIP TO next section)

G.07.04 In the PAST 12 MONTHS where have you USUALLY used mushrooms (i.e. where have you been while under the influence)?
(check ALL that apply)

☐ My own home
☐ My partner or lover's home
☐ Relative's home
☐ Friend or acquaintance's home
☐ Dealer's home
☐ Party at someone's home
☐ Rave / dance party / music festival
☐ Restaurant / cafe / coffee shop
☐ Night club / bar / pub
☐ Live music event (e.g. band or concert)
☐ School / college / university
☐ My workplace
☐ Public place (e.g. street, park, alley, mall)
☐ Outdoors in nature (e.g. at an event)
☐ In a vehicle (as a passenger)
☐ In a vehicle (as the driver)
☐ Other (specify) _____

Please answer the following questions only if you feel confident of your knowledge.

G.07.08 How would you rate your knowledge of the price and availability of mushrooms in your region?

☐ I know nothing about it (SKIP TO G.07.14)
☐ I have a little bit of knowledge
☐ I know a lot

G.07.09 How much did mushrooms cost the MOST RECENT time you purchased it?

$ _____ per _____ (quantity)

☐ Don't know or don't remember

G.07.10 How easy is it to get mushrooms at the moment (availability)?

☐ Very easy — score within 90 minutes
☐ Easy — score within a day
☐ Difficult — score in more than one day
☐ Very difficult — could not score this drug
☐ Don't know

G.07.11 Has the availability of mushrooms changed in the PAST 12 MONTHS?

☐ Becoming easier to get
☐ Staying about the same
☐ Becoming more difficult to get
☐ Fluctuates in availability
☐ Don't know

G.07.14 How many different people have you bought mushrooms from in the PAST 12 MONTHS (includes trading goods or services)?

Enter number of people _____
☐ Don't know
☐ Refused
(If "DID NOT BUY / ONLY GIFTED", ENTER 0 then SKIP TO G.07.20.)

G.07.15 In the PAST 12 MONTHS how often did you buy mushrooms (includes trading goods or services)?
(check ONE box only)

☐ Monthly or less (1–12 times)
☐ Every two weeks or less (13–24 times)
☐ Weekly or less (25–52 times)
☐ Daily or less (53–365+ times)
☐ Don't Know
☐ Refused

G.07.16 Who have you bought mushrooms from in the PAST 12 MONTHS (includes trading goods or services)?
(check ALL that apply)

- ☐ Friends
- ☐ Known dealer
- ☐ Work Colleagues
- ☐ Acquaintances (friends of friends)
- ☐ Pimp
- ☐ Sex trade worker
- ☐ Trick / "date" / john
- ☐ Inmate / prisoner
- ☐ Unknown dealer
- ☐ Other (specify) _____

G.07.17 In the PAST 12 MONTHS who did you usually purchase mushrooms for (includes trading goods or services)?
(check ONE box only)

- ☐ Yourself only
- ☐ Yourself and others (e.g. friends)
- ☐ Others only
- ☐ Refused

G.07.18 In the PAST 12 MONTHS what venues (locations) did you score (buy) mushrooms at (includes trading goods or services)?
(check ALL that apply)

- ☐ My own home
- ☐ My partner or lover's home
- ☐ Relative's home
- ☐ Friend or acquaintance's home
- ☐ Dealer's home
- ☐ Trick / date / john's home
- ☐ Party at someone's home
- ☐ Rave / dance party / music festival
- ☐ Restaurant / cafe / coffee shop
- ☐ Night club / bar / pub
- ☐ Crack house / shooting gallery
- ☐ Live music event (e.g. band or concert)
- ☐ School / college / university
- ☐ My workplace
- ☐ Jail / prison / youth detention centre
- ☐ Public place (e.g. street, park, alley, mall)
- ☐ Other (specify) _____

G.07.19 In the PAST 12 MONTHS how did you pay for the mushrooms you purchased (includes trading goods or services)?
(check ALL that apply)

- ☐ Paid employment (wage/salary)
- ☐ Credit from dealers
- ☐ Government allowance/welfare
- ☐ Borrowed money from friends
- ☐ Borrowed money from family
- ☐ Drug dealing for personal supply
- ☐ Drug dealing for cash profit
- ☐ Panhandling
- ☐ Middling / Steering
- ☐ Bartering drugs/goods
- ☐ Fraud
- ☐ Property crime
- ☐ Sex work / tricks / "dates"
- ☐ Other (specify) _____
- ☐ Refused

G.07.20 Think about the person or place that you got mushrooms from most often during the PAST 12 MONTHS: could you get other drugs there too?

- ☐ Yes
- ☐ No (SKIP TO next section)
- ☐ Don't know (SKIP TO next section)
- ☐ Refused (SKIP TO next section)

If YES, which other drugs?

- ☐ Cannabis (marijuana, hashish, etc.)
- ☐ Cocaine powder (coke, blow)
- ☐ Crack (rock)
- ☐ Amphetamine (speed powder or pills)
- ☐ Crystal meth (tina, jib, gak)
- ☐ Heroin (down)
- ☐ LSD (acid)
- ☐ Ecstasy ("E", MDMA/MDA/MDEA)
- ☐ GHB / GBL / BD ("G", liquid ecstasy)
- ☐ Ketamine ("K", special K)
- ☐ Methadone (juice)
- ☐ Pain killers (morphine, oxycodone, etc.)
- ☐ Other prescription drugs
- ☐ Other (specify) _____

Appendix C: Quantitative Instrument, Demographic Section

AOD HR Drug Use Survey Rev. 6.0 2016-11-16

L. Demographics

L.01 What is your age? ☐☐ years

L.02 What is your gender?

☐ Female
☐ Male
☐ Transgender
☐ OR _____ (Please specify)

L.03 What kind of area do you currently live in?

☐ Large urban area (urban/downtown area)
☐ Large urban area (suburbs)
☐ Small urban area (town, village)
☐ Rural area (countryside, farm)

L.04 If you are comfortable disclosing, how do you describe your sexual orientation?

☐ Heterosexual/Straight
☐ Homosexual/Gay or Lesbian
☐ Bisexual
☐ Unsure/Questioning
☐ Prefer not to disclose
☐ OR _____ (Please specify)

L.05 Were you born in Canada?

☐ Yes
☐ No (SKIP TO L.06)

If YES, in which province or territory were you born?

☐ British Columbia
☐ Alberta
☐ Saskatchewan
☐ Manitoba
☐ Ontario
☐ Québec
☐ New Brunswick
☐ Nova Scotia
☐ Prince Edward Island
☐ Newfoundland & Labrador
☐ Yukon
☐ Northwest Territories
☐ Nunavut

(SKIP TO L.08)

L.06 Which country were you born in?

_____

L.07 What year did you come to Canada?

I arrived in ☐☐☐☐

L.08 What ethnic group or family background do you identify yourself as? (*check ALL that apply*)

☐ White
☐ Chinese
☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc.)
☐ Black (e.g. African, Jamaican or Caribbean)
☐ Filipino
☐ Latin American
☐ Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese, etc.)
☐ Arab (e.g. Arabic speaking, Maghrebi)
☐ West Asian (e.g., Afghan, Iranian, Israeli, Turk, etc.)
☐ Japanese
☐ Korean
☐ Indigenous (e.g. North American Indian, Metis, Inuit)
☐ Other (specify) _____
☐ Don't know
☐ Refused

L.09 .What is the language you feel most comfortable speaking?

☐ English
☐ French
☐ Other (specify) _____

L.10. What type of accommodation do you currently live in?

☐ Owned house/apartment (alone or shared)
☐ Rented house/apartment (alone or shared)
☐ Parents'/carers' family home
☐ Foster home
☐ Boarding house / hostel / single room occupancy hotel (SRO)
☐ Student residence
☐ Shelter / refuge
☐ Drug Treatment Residence
☐ Squat
☐ No fixed address/couch surfing/staying with friends
☐ Other (specify) _____

L.11 Is your current housing situation stable?

☐ Yes
☐ No
☐ N/A or No fixed address
☐ Don't know
☐ Refused

L.12. Are you currently attending a university, a college or a school on a full-time basis?

☐ Yes, university
☐ Yes, college
☐ Yes, school
☐ No
☐ Don't know
☐ Refused

L.13 What is the highest level of education you have completed?
(check ONE box only)

- ☐ No schooling
- ☐ Some elementary schooling
- ☐ Completed elementary school
- ☐ Some high school
- ☐ Completed high school
- ☐ Some community college
- ☐ Some technical school (college classique CEGEP)
- ☐ Completed community college
- ☐ Completed technical school (college classique CEGEP)
- ☐ Some university
- ☐ Completed Bachelor's Degree
- ☐ Post graduate training: MA, MSc., MSW
- ☐ Post graduate training: PhD, "Doctorate"
- ☐ Professional degree (Law, Medicine, Dentistry)
- ☐ Don't know
- ☐ Refused

L.14 How would describe your employment status?
(check ONE box only)

- ☐ Full time paid work (including any paid leave, e.g. vacation, pregnancy, illness)
- ☐ Part time paid work
- ☐ Sick leave, maternity leave, strike etc. (not paid by the employer)
- ☐ Unemployed
- ☐ Retired
- ☐ Homemaker
- ☐ Self-employed
- ☐ Disability
- ☐ Casual worker
- ☐ Seasonal worker / Seasonal lay-off
- ☐ Other (specify) _____
- ☐ Don't Know
- ☐ Refused

L.15 What is your current marital status?
(check ONE box only)

- ☐ Married
- ☐ Living common-law (living with partner for at least 2 year)
- ☐ Widowed
- ☐ Separated
- ☐ Divorced
- ☐ Never married
- ☐ Don't know
- ☐ Refused

L.15.a Have you ever been TESTED for:
(check ONE box only)

- ☐ HIV
- ☐ Hepatitis C
- ☐ Both
- ☐ Neither (SKIP TO L.16.a)

L15.b Have you ever been told by a physician or other health care provider that you have HIV?

- ☐ Yes
- ☐ No

L.15.c Have you ever been told by a physician or other health care provider that you have hepatitis C?

- ☐ Yes
- ☐ No

L.16.a During a normal week, about how much money do you spend on drugs (excluding tobacco)?

$_____

L.16.b During a normal week, about how much money do you spend on alcohol?

$_____

L.17 Thinking about the total income for ALL HOUSEHOLD MEMBERS, could you please tell me how much income you and other members of your household received LAST YEAR, before taxes and other deductions? **If the participant does not pool income with others (eg. parents, partner, etc) indicate TOTAL PERSONAL INCOME.** Please include income FROM ALL SOURCES such as savings, pensions, rent and unemployment insurance as well as wages. We don't need the exact amount; could you tell me which of these broad categories your TOTAL HOUSEHOLD INCOME falls into?

- ☐ less than $20,000
- ☐ between $20,000 and $39,999
- ☐ between $40,000 and $59,999
- ☐ between $60,000 and $79,999
- ☐ between $80,000 and $99,999
- ☐ more than $100,000
- ☐ Don't know
- ☐ Refused

L.18 What is your best estimate of your TOTAL PERSONAL INCOME from all sources, received LAST YEAR, before taxes and other deductions? Please include income FROM ALL SOURCES such as savings, pensions, rent and unemployment insurance as well as wages & student loans. We don't need the exact amount; could you tell me which of these broad categories your TOTAL PERSONAL INCOME falls into?

- ☐ less than $20,000
- ☐ between $20,000 and $39,999
- ☐ between $40,000 and $59,999
- ☐ between $60,000 and $79,999
- ☐ between $80,000 and $99,999
- ☐ more than $100,000
- ☐ Don't know
- ☐ Refused

L.19 Are you currently in any form of drug or alcohol treatment or support group? (e.g. methadone, 12-step, outpatient day program, individual counselor, etc.)

☐ Yes
☐ No (SKIP TO L.19.02)
☐ Don't know (SKIP TO L.19.02)
☐ Refused (SKIP TO L.19.02)

L.19.01 What kind of alcohol or drug treatment are you currently receiving? (*check ALL that apply*)

READ OUT LIST	Time in Treatment (months)
☐ Detox / Youth detox	_____
☐ Daytox	_____
☐ Recovery house	_____
☐ Treatment centre	_____
☐ Counselor	_____
☐ 12-step (NA / CA / AA)	_____
☐ Methadone program	_____
☐ Cocaine treatment pgm	_____
☐ Residential or Therapeutic community	_____
☐ Other out-patient treatment program	_____
☐ Drug treatment court	_____
☐ Other (specify) _____	_____

L.19.02 Are you currently trying to get into alcohol or drug treatment (including methadone)?

☐ Yes
☐ No
☐ Don't Know
☐ Refused

L.19.03 Have you ever been in a methadone treatment program?

☐ Yes
☐ No (SKIP TO L.19.05)
☐ Don't know (SKIP TO L.19.05)
☐ Refused (SKIP TO L.19.05)

L.19.04 Are you in a methadone treatment program right now? (*check L.19.01*)

☐ Yes
☐ No (SKIP TO L.19.05)
☐ Don't know (SKIP TO L.19.05)
☐ Refused (SKIP TO L.19.05)

If YES, when did you start your current program? (MM / YYYY)

☐☐ / ☐☐☐☐

☐ Don't Know
☐ Refused

L.19.05 In general, would you say your mental health is:

☐ Excellent
☐ Very good
☐ Good
☐ Fair
☐ Poor
☐ Don't know
☐ Refused

L.20 Have you ever spent any time in jail (i.e. held without being charged, or held while waiting for a hearing) for a reason connected with drugs or alcohol, even if only for a few hours?

☐ Yes
☐ No
☐ Don't Know
☐ Refused

L.21 Have you ever been convicted of an offence related to drugs or alcohol?

☐ Yes
☐ No (SKIP TO L.26)
☐ Don't Know (SKIP TO L.26)
☐ Refused (SKIP TO L.26)

L.22 Have you ever served time in prison as a result of being convicted for an offence that was related to drugs or alcohol?

☐ Yes
☐ No
☐ Don't Know
☐ Refused

L.26 Have you ever participated in a previous wave of this project?

☐ Yes
☐ No
☐ Don't Know
☐ Refused

Appendix D: Quantitative Recruitment Poster

Figure A1: Quantitative recruitment poster

Appendix E: Quantitative Consent Form

University of Victoria | Canadian Institute for Substance Use Research

Participant Consent Form

Monitoring Club Drug Use in Victoria: Prevalence, Risks and Harms

You are invited to participate in a study called Monitoring Club Drug Use in Victoria: Prevalence, Risks and Harms that is being conducted by Dr. Tim Stockwell.

Dr. Stockwell is director of the Canadian Institute for Substance Use Research (CISUR). You may contact Dr. Stockwell if you have further questions by phone at 250-472-5445. This research is being funded by the Ministry of Health as part of a larger drug use monitoring study for BC.

Purpose and Objectives

This is a study of young people's alcohol and illicit drug use in bars, clubs and parties in Victoria, and is being conducted by researchers at the Canadian Institute for Substance Use Research. The purpose of this research project is to look at trends in drug use patterns among the club-drug using population. The goal of the research project is to learn more about alcohol and other drug use among young people in these locations and contexts, and about the various risks and harms associated with their use.

Importance of this Research

This kind of research is important because it is difficult to prevent health problems caused by illicit drug. Having an understanding of drug use trends, and people's attitudes toward safety and prevention allows us to have more of an impact on health policy, law, and service provision in Victoria and elsewhere in Canada.

Participant Selection

You are being asked to participate in this study because you have had experience using illicit "party" drugs such as ecstasy, crystal meth, ketamine, or GHB in the past six months. You must also be 19 years of age or older to participate in this study.

What is involved?

If you agree to voluntarily participate in this research, you will be interviewed about your drug use, what effects you experience form this use, your opinions about how best to prevent problems, and also how you get your drugs. There is also a self-administered section on recent sexual activity involving any drug use. You have the right to refuse to answer any question including the self-administered questions, and there will be no consequence for refusing to answer any questions.

Inconvenience

Taking part in this study will take approximately 45 minutes to an hour.

Risks

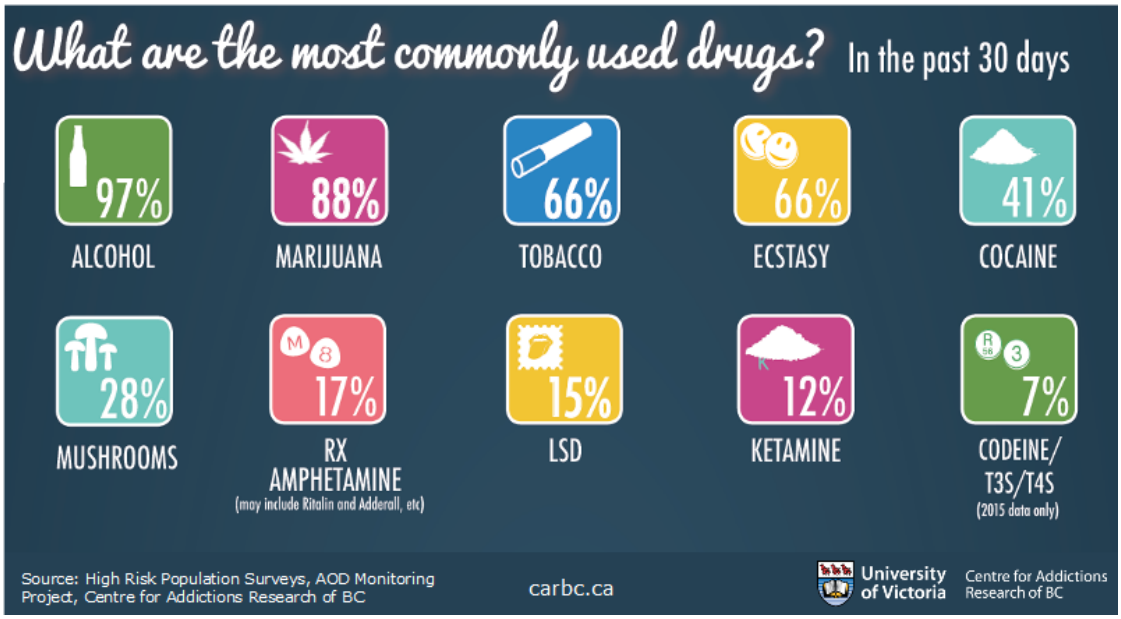
By taking part in this research you may experience some negative emotional response to some of the questions about your drug use and its effects on your life. You may refuse, for any reason, to answer any questions that make you feel uncomfortable, including the self-administered questions on drug use and sexual activity, and there will be no consequences for refusing to answer any questions. Using both legal and illegal drugs can create a variety health and social problems for you. If you would like to discuss how to get help with any problems you may be experiencing the interviewer has some contact details of local social service and health agencies.

Appendix F: Qualitative Interview Instrument

PART 1: Figures

LS: First, we are starting with 2 pictures that show the changes in magic mushroom use by young people here in Victoria. The pictures were made with information from the "Alcohol and Other Drugs" study led by the Canadian Institute of Substance Use Research.

FIGURE 1:

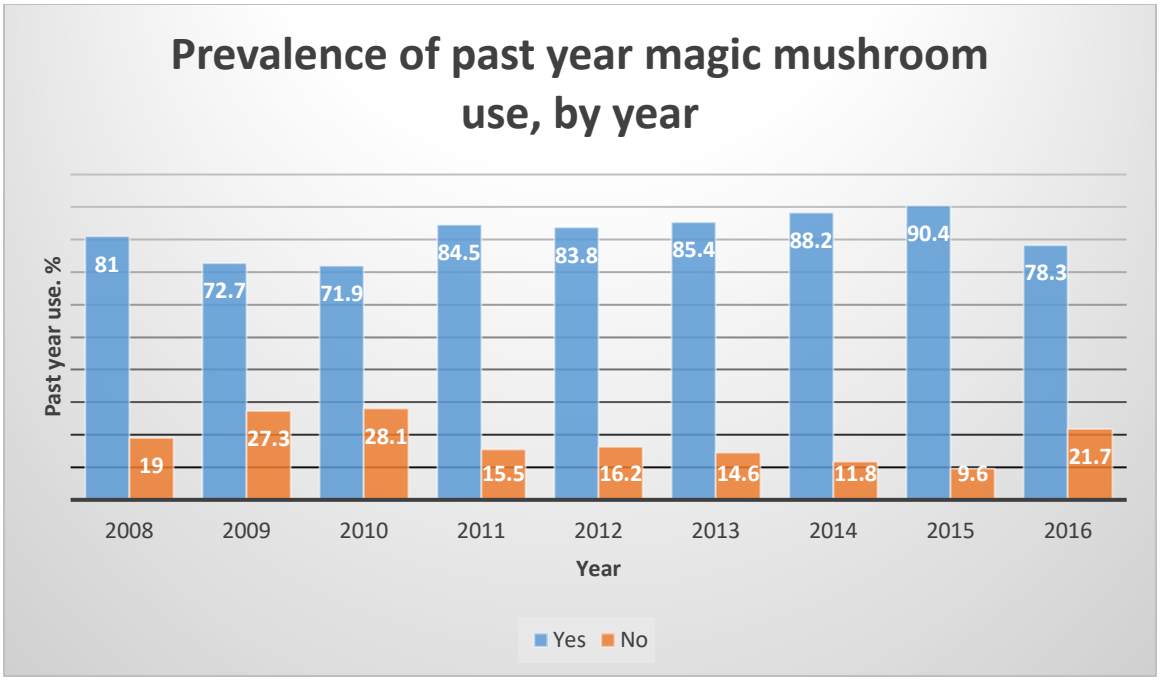


This figures show drug use in the past 30 days. So, for example, 97% of people interviewed in this study indicated that they had used alcohol at least once in the previous 30 days.

Questions:

1) Is there anything about this figure that surprises you? If so, what?
    a. Why or why not?
2) The picture shows that 28% of people who were interviewed had used magic mushrooms at least once within the previous 30 days. Does that surprise you?
    a. Why or why not?
    b. Would you expect the number to be lower or higher? Why?
3) How well does this picture represent your own life or experience with magic mushrooms?

FIGURE 2:



This picture is from the same study as the last one. It shows how use of magic mushrooms between 2008 – 2016. The orange line is for no use, the bue for use.

1) Is there anything about this figure that surprises you?
    a. Why or why not?
2) The chart shows that magic mushroom use has been gradually increasing in Victoria since 2011. In 2014 there was a larger increase in use. Does that surprise you? Does this ring true to your experience?
    a. Why or why not?
    b. Would you expect the trends in frequency of use to be increasing or decreasing over the years?
3) How would you explain the increase starting in 2014?
    a. For example, do you think that from 2014 to 2015, attitudes were changing about magic mushrooms?

PART 2: Semi-Structured Interview Questions

- At what age did you first start using magic mushrooms?
- How often do you use magic mushrooms now??
    - Why do you use magic mushrooms at this rate? How do you feel about your rate of use?
- Do you use magic mushrooms with any other substances?
- Has the opioid epidemic or fentanyl changed your substance use patterns?
- Who do you use magic mushrooms with? With friends, on your own?
- Where do you use magic mushrooms?

- Can you walk me through the last time you used magic mushrooms?
- What is it that you like about using magic mushrooms?
- What are the benefits of using magic mushrooms?
- What is it that you don't like about using magic mushrooms?
- What are the harms of using magic mushrooms?
- How easy is it to get magic mushrooms?
    - If you decided you wanted to take magic mushrooms, how long would it take you to get the magic mushrooms?
    - Where do you get your magic mushrooms? Online, through a dealer, picking?
- Do you think magic mushrooms are accessible and available?
    - Are magic mushrooms more accessible and available now than in the past?
    - Why do you think that **is/isn't** changing?
- What made you want to decide to try magic mushrooms?
    - Do you think other people try magic mushrooms for the same reason?
        - If not, why might other people try magic mushrooms?
- In your own social circle, do you think more or less people are using magic mushrooms now than in the past?
    - Why do you think that is?
- How do you learn about how to use magic mushrooms?
- By this I mean, do you research strains, dosage amounts, methods of administration?
    - Do you think it is important/not important to have this knowledge?
    - Does your research change the way you use magic mushrooms?
- Does most of your social circle also do magic mushrooms?
    - If yes: do you think magic mushrooms are something that connects you together
- what do your non-magic mushroom using friends think of your use?
        - Do you feel any judgment?
        - Do you think they accommodate your use?
- Is there anything you want to tell me about magic mushrooms that we haven't talked about?
- Do you have any questions for me?

PART 3: Demographics

- How old are you?
- What is your occupation?
- How long have you lived in the Victoria area?
- What gender do you identify as?

Appendix G: Qualitative Recruitment Poster

Figure A2: Qualitative recruitment poster

Appendix H: Qualitative Recruitment Facebook Post

Figure A3: Qualitative recruitment Facebook post

Appendix I: Qualitative Consent Form

University of Victoria | Canadian Institute for Substance Use Research

Participant Consent Form

MAGIC FUNGUS: MAGIC MUSHROOM USE IN VICTORIA, B.C

You are invited to participate in a study entitled **Magic Fungus: Magic Mushroom Use in Victoria, B.**C. that is being conducted by Lindsay Shaw and supervised by Dr. Eric Roth.

Lindsay Shaw is a graduate student in in the department of Social Dimensions of Health at the University of Victoria and is a student at the Canadian Institute for Substance Use Research at the University of Victoria. You may contact her if you have further questions by texting or calling (250) 618-9585 or emailing lvshaw@uvic.ca

As a Graduate student, Lindsay Shaw is required to conduct research as part of the requirements for a degree in Social Dimensions of Health. It is being conducted under the supervision of Dr. Eric Roth. You may contact her supervisor at ericroth@uvic.ca

Purpose and Objectives
The purpose of this research project is to learn more about the social aspects and culture of magic mushroom use in Victoria, British Columbia. Although it is known that young adults are using magic mushrooms, the trends, social aspects and culture of use have not been studied. There are no right or wrong answers, we are just interested in what is happening in Victoria.

Importance of this Research
Research of this type is important because there is currently little known about the culture of magic mushroom use. This research will help to fill this gap.

Participants Selection
You are being asked to participate in this study because you are between the ages of 19 – 24 and you have used magic mushrooms within the previous 4 months.

What is involved
If you consent to voluntarily participate in this research, your participation will include an approximately one hour one-on-one interview. Audio-tapes and written notes will be taken. A transcription of the interview will be made. All data is stripped of your name, and is kept in a secure location.

Inconvenience
Participation in this study may cause some inconvenience to you, including loss of time.

Risks
There are no anticipated risks for you participating in this research.

Benefits
The potential benefits of your participation in this research include: allowing participants to speak about substance use without judgment or stigma, informing policy and education from a magic mushroom user's perspective, and contributing to an area of research where currently there is not a substantial amount of research on magic mushroom use culture.

Compensation
As a way to compensate you for any inconvenience related to your participation, you will be $20 cash. If you consent to participate in this study, this form of compensation to you must not be coercive. It is unethical to provide undue compensation or inducements to research participants. If you would not participate if the compensation was not offered, then you should decline.

Voluntary Participation
Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study your data will not be used, and will be destroyed.

Anonymity
In terms of protecting your anonymity your name will not be recorded, instead code names will be used.

Confidentiality
Your confidentiality and the confidentiality of the data will be protected by keeping all paper records in a locked cabinet, in a locked room and keeping electronic files in a password-protected file, on a password protected computer, in a locked room.

Dissemination of Results
It is anticipated that the results of this study will be shared with others in the following ways: thesis, journal publications and presentations.

Disposal of Data
Data from this study will be disposed of after one year. Paper documents will be shredded and electronic files will be deleted and erased.

Contacts
Individuals that may be contacted regarding this study include Lindsay Shaw or Eric Roth. Please refer to the contact information at the beginning of the consent form.

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researchers, and that you consent to participate in this research project.

_____	_____	_____
Name of Participant	*Signature*	*Date*

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix J: Lifetime Rates of Magic Mushroom Use, by Year

Table A1: Lifetime rates of magic mushroom use, by year

Year		**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	***Total***
Lifetime											
Use (%)[†]											
	Yes	58	99	64	71	74	41	51	52	46	556
		(90.6)	(94.3)	(92.8)	(97.3)	(88.1)	(89.1)	(85.0)	(91.2)	(86.8)	(91.0)[a]
	No	6	6	5	2	10	5	9	8	7	55
		(9.4)	(5.7)	(7.2)	(2.7)	(11.9)	(10.9)	(15.0)	(8.8)	(13.2)	(9.0)[a]
Total		64	105	69	73	84	46	34	60	53	611[˚]
		(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)[a]

[†] *denotes % within year, not overall sample*
[a] *denotes % within overall sample*
[˚] *denotes 3 missing cases, not included in analysis*

Appendix K: Past Year Use of Magic Mushrooms, by Year

Table A2: Past year magic mushroom use, by year

Year		**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	***Total***
Past 12-month use (%)[†]											
	Yes	47	72	46	60	62	35	45	47	36	450
		(81.0)	(72.7)	(71.9)	(84.5)	(83.8)	(85.4)	(88.2)	(90.4)	(78.3)	(80.9)[a]
	No	11	27	18	11	12	6	6	5	10	55
		(19.0)	(27.3)	(28.1)	(15.5)	(16.2)	(14.6)	(11.8)	(9.6)	(21.7)	(19.1)[a]
Total		58	99	64	71	74	41	51	52	46	556°
		(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

[†] *denotes % within year, not overall sample*
[a] *denotes % within overall sample*

Appendix L: Frequency Distribution of Magic Mushroom Availability, by Year

Table A3: Frequency distribution of magic mushroom availability, by year

Year		**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	***Total***
Availability (%)[†]											
	Easy	19	31	26	28	28	15	23	29	20	219
		(70.4)	(60.8)	(72.2)	(63.6)	(73.7)	62.5)	(67.6)	(72.5)	(80.0)	(68.6)[a]
	Difficult	8	20	10	16	10	9	11	11	5	100
		(29.6)	(39.2)	(27.8)	(36.4)	(26.3)	(37.5)	(32.4)	(27.5)	(20.0)	(31.3)[a]
Total		27	51	36	44	38	24	34	40	25	319
		(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)[a]

[†] *denotes % within year, not overall sample*
[a] *denotes % within overall sample*

Appendix M: Frequency Distribution of Magic Mushroom Use Knowledge, by Year

Table A4: Frequency distribution of magic mushroom knowledge, by year

Year		**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	***Total***
Knowledge											
(%)[†]											
	Nothing	19	20	10	16	23	11	9	7	10	125
		(40.4)	(27.8)	(21.7)	(26.2)	(37.7)	(31.4)	(20.0)	(14.9)	(27.8)	(27.8)[a]
	A little	22	42	26	33	27	18	27	24	18	237
		(46.8)	(58.3)	(56.5)	(54.1)	(44.3)	(51.4)	(60.0)	(51.1)	(50.0)	(52.6)[a]
	A lot	6	10	10	12	11	6	9	16	8	88
		(12.8)	(13.9)	(21.7)	(19.7)	(18.0)	(17.1)	(20.0)	(34.0)	(22.2)	(19.6)[a]
Total		47	72	46	61	61	35	45	47	36	450
		(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)[a]

[†] *denotes % within year, not overall sample*
[a] *denotes % within overall sample*

Appendix N: Qualitative Participant Descriptions

Table A5: Qualitative participant descriptions

Participant Number	Gender	Age
1	Female	19
2	Female	20
3	Female	20
4	Male	21
5	Male	24
6	Male	21
7	Male	21
8	Male	22
9	Male	22
10	Male	19
11	Female	20
12	Male	21
13	Female	21
14	Male	19
15	Female	22
16	Female	21
17	Female	20
18	Female	20
19	Female	23
20	Male	21