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Psychedelic psychotherapy : existential and neuroscience perspectives on the therapeutic journey

Arthur W. Seelig
Smith College

PSYCHEDELIC PSYCHOTHERAPY: EXISTENTIAL AND NEUROSCIENCE PERSPECTIVES ON THE THERAPEUTIC JOURNEY

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Arthur Seelig

**Smith College School for Social Work
Northampton, Massachusetts 01063**

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ABSTRACT

Psychotherapy with the use of high-dose psychedelic drugs shows immense promise in treating a myriad of debilitating psychiatric conditions. After a three-decade long suspension, regulators have allowed for new studies and re-awakened interest in the potential of psychedelics. However, while research on the topic has quickly progressed, little has been done to reinvigorate our clinical understanding of the psychedelic healing process. This thesis interprets the psychedelic state through the twin perspectives of existentialism and neuroscience with the goal of starting to develop a theoretical language.

The subjective experience of high-dose psychedelics under therapeutic conditions often results in a loss-of-self referred to as 'ego-death'. Ego-death is sometimes accompanied by fearful experiences which people compare to mortal terror, and is a strong predictor of therapeutic success. Based on these observations, Irving Yalom's existential theory provides a helpful framework from which to interpret these experiences and understand the powerful emotions that arise during the psychedelic state. Interestingly, the biologically-based neuroscience approach compliments the subjective language of existentialism by providing supporting observations about brain activity during ego-death. That these experiences are predictable and observable give credence to their importance.

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I would like to thank my advisor, Jean LaTerz for her patience and guidance through this process. I would also like to thank the professors and classmates whose willingness to let me follow my muse and support me throughout this journey have helped me imagine that this was possible.

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TABLE OF CONTENTS

CHAPTER ONE

Introduction

> I had the strong impression that things can be seen, which usually rest under the surface…a lot of emotions were hidden for a long time that are usually not noticed at all [but] became very, very present in that state when you have a break-through somehow… – Patient #12 from a recent study in which LSD was given to people suffering from terminal illness (Gasser et al., 2014b).

What is Psychedelic Psychotherapy?

In the most basic form, this thesis explores a therapeutic intervention that takes advantage of an alteration of consciousness induced by psychedelics substances. Jefferey Guss is a professor of psychiatry and runs the psychedelic psychotherapy training program at New York University. He defines psychedelic psychotherapy as "a collection of psychotherapeutic processes that are facilitated by psychedelic agents" (Guss, 2013). The reason for such a broad definition is that the psychedelics are catalysts and not the therapy alone. The nature of the therapy depends on the goals of treatment. A typical protocol will be examined in the next chapter; however, a brief explanation of the most widely accepted therapies may be helpful.

There are two main strands of psychotherapy with psychedelics. The first utilizes low-doses of drug within a long-term therapeutic relationship. In this form the therapy utilizes psychedelics to accelerate the therapy process by allowing a loosening of defenses and amplifying the transferential relationship between client and clinician. This form, known as *psycholytic therapy,* so named because it is thought to aid the relaxation of ego defenses (from the Greek *lusis* meaning loosening) and to make the underlying psychic conflicts more accessible (Grof, 1980). Psycholytic therapy leans heavily upon the

relationship between client and clinician and often relies on numerous sessions with low-dose psychedelics.

The second form of therapy is generally referred to simply as *psychedelic psychotherapy* and uses psychotherapy as a preparation for, and integration of, high-dose psychedelic experiences (Grof, 1980). Clients are given support throughout their drug experience, however, the experience is largely internal. In psychedelic psychotherapy clients are often given eye-covers and music to help them maintain an inward gaze instead of engaging in conversation. In this way it does not rely on the transference relationship to uncover dynamic patterns. **This thesis is focused upon this high-dose psychedelic psychotherapy which has been the primary subject of the recent revival in research.**

Historical & Legal Information

The historic use of psychedelics extends into the distant past and has been maintained primarily in spiritual or religious ceremonies. Such a history is too broad to be fully summarized here. However, I've made an attempt to synthesize important themes in their use and provide sufficient detail to illustrate the breadth of their use across the world. The traditional methods in which psychedelics were (and continue to be) used have many similarities in approach to current therapeutic protocols. It should then be no surprise that people receiving psychedelics in either traditional or therapeutic contexts report similar experiences often culminating in mystical states.

Evidence supports the widespread use of psychoactive substances throughout human history. Merlin (2003) reviewed data on some of the substances which suggest that ephedra had been used 40,000 years ago and the earliest evidence of cannabis use dates back 10,000 years. Direct evidence for the use of specific plants is often difficult to obtain because plant matter breaks down readily.

There is a growing body of evidence that psychedelic substances have been used by human societies for millennia, of which I've chosen a small piece to present here. For further information on this growing field please see Rauch and Hoffman's exhaustive *Encyclopaedia of Psychoactive Plants* (2005).

Recent radiocarbon dating of peyote samples discovered at archeological sites in Texas found that some samples were 5,700 years old (or date to ~3,700 B.C.E), while another related sample is 835 years old suggesting that there may have been continuous use of peyote for several millennia (El-Seedi, De Smet, Beck, Possnert, & Bruhn, 2005; Terry, Steelman, Guilderson, Dering, Rowe, 2006). Amazingly, El-Seedi and colleagues (2005) were able to extract mescaline from samples of peyote believed to be 5,700 years old, proving that these samples did indeed contain psychoactive substances. The peyote samples benefitted from the dry desert climate of Texas, whereas evidence in other parts of the world has had to rely more on human creation such as drawings or carvings. The most famous of these human creations are the 3,000 year old "mushroom stones" of Central America which depict a large mushroom cap with figures of humans or animals carved into the mushroom stem (Metzner, 2005 from Sacred Mushrooms of Visions introduction). After the Spanish colonial conquest in the 16th century there is documentation of the use of psilocybin mushrooms (along with other psychoactive compounds). The most extraordinary document was captured by Bernadino de Sahagun, a Spanish missionary who served in Mexico from 1529 to 1590. He carefully wrote down his experiences in what is known today as the Floretine Codex (Sahagun, 2002). Eugenia Bone, in her lovely book Mycophilia explains:

> De Sahagun describes the teonanactl ceremony (teo = God, nanactl = mushroom, or possibly flesh) in which the people drank chocolate and ate the mushrooms with honey. 'And when the effect of the mushrooms had left them, they consulted among themselves and told one another what they had seen in visions' (Bone, 2011, Mycophilia p.245).

Unfortunately Spanish rule included distaste for these native intoxicants as evidenced by early Spanish literature for people arriving in the colonies:

> In 1656, a guide for missionaries argued against Indian idolatires, including mushroom ingestion, and recommended their extirpation. Not only do reports condemn Teonanacatl, but actual illustrations also denounce it. One depicts the devil enticing an Indian to eat the fungus; another has the devil performing a dance upon a mushroom (Food of the Gods, p.156)

Modern Uses of Psychedelics in Healing

Psychedelic plants continue to be used in spiritual and religious ceremonies throughout the world. Briefly, these include the use of the peyote cactus in the Native American Church in New Mexico, fly agaric mushrooms among native Siberian tribes, ayahuasca tea in both traditional tribal settings as well as within regional Christian churches in Brazil (Ratsch & Hofmann, 2005).

Indigenous uses of psychedelics have a spiritual component and appear to have what we might call therapeutic effects even though they are not explicitly presented as such. The Native American Church of the American southwest has been studied extensively, as have the Ayahuasca religions of central and South America. John Halpern of Harvard University has led much of the work to assess the effects of psychedelics among these groups. He has found that people attending religious ceremonies with psychedelics, often hundreds in their lifetime, had similar scores on standard measures of memory and attention, as well as on the Rand Mental Health Inventory (RMHI) as non-drug using matches (Halpern, et al. 2005). These participants also reported positive benefits from attending ceremonies, especially in the reduction of alcohol consumption among a population especially prone to abuse.

Despite the long history of European interaction with cultures that utilized psychedelics, they did not enter the Western pharmacopeia until the discovery of LSD in 1943. In the late 1930s Albert Hofmann, a Swiss chemist, was working on creating iterations of ergotamine (an alkaloid found in a wheat fungus). Ergotamine was being used by obstetricians during the birthing process, but Hofmann believed it could be improved upon. In the lab he would create slightly different iterations of the building blocks of Ergotamine and test them on rats for efficacy. When he tested the 25th substance he made (named LSD-25) he noted that it appeared to have no effect other than causing the rats to behave strangely (Hofmann, 2009/1979).

Five years later Hofmann returned to some of these drugs to test for alternative effects. In the process of making a sample of LSD-25 he began to feel light-headed and went home. That afternoon,

while lying in his bed he closed his eyes and "perceived an uninterrupted stream of fantastic pictures, extraordinary shapes with intense, kaleidoscopic play of colors." This was the first (and accidental) LSD experience (Hofmann, 2009/1979). The following week Hofmann self-experimented with LSD and had a very powerful experience that interested his coworkers at Sandoz. From there, reports about the incredible power of LSD spread quickly through the psychiatric establishment.

The first paper on LSD published by Werner Stoll in 1947 experimented with giving schizophrenic and non-schizophrenic patients low-doses of LSD that largely resulted in euphoric effects. This paper included a self-experiment in which Stoll reported his own extraordinary experience with LSD (Hofmann, 2009/1979). Samples of the drug were sent to various labs around the world. The first English-language paper on LSD was published in 1950 and titled *LSD-25 as an Aid in Psychotherapy (preliminary report of a new drug)* which immediately suggested a therapeutic use of LSD (Busch & Johnson, 1950). These papers opened a flood of research on the topic. In the following decade hundreds of papers would be published on psychedelics during a time of extraordinary interest and progress in psychiatric medication. LSD and psychedelics more broadly, also caught the attention of the CIA and American military which began trials of LSD for use against Cold War enemies. The discovery of the CIA's clandestine program known as MK-Ultra showed that the CIA had tested LSD as a truth serum on hundreds, if not thousands of people (for a history of this period see Lee & Shlain's energetic book *Acid Dreams – The Complete Social History of LSD: The CIA, the Sixties, and Beyond,* 1994). Information about the damage done by this program continues to be discovered, including documents that show that the CIA poisoned the bread in a French town with LSD which left 5 people dead, and sent hundreds to the hospital (Samuel, 2010). Conversely, psychologists and psychiatrists that self-experimented with psychedelics during this period led to an intense interest in psychedelics that spread into the broader community. Aldous Huxley reported on his own experience with mescaline in his book *The Doors of Perception* (1954) and various popular publications took up the topic as well, such as R. Gordon Wasson's article on psilocybin mushrooms in Life Magazine (June 10, 1957). The American

government's coincidental interest in psychedelics led to funding for many experiments across the country and it was at was at one of these that the writer Ken Kesey first tried LSD. That experience led him to procure LSD and begin throwing parties in and around San Francisco that came to be known as the Acid Tests (Lee & Shlain, 1994). These parties are today considered the founding moment of 1960s psychedelia and are among the first concerts of the Grateful Dead (for an up-close description of this time see Tom Wolfe's 1968 book *The Electric Kool-Aid Acid Test*). These powerful drugs had now spread into broader society and became part of the growing youth movements. Reports of the negative effects of LSD and a broader fear of these drugs led to prohibition in 1966 and the adoption of drug scheduling in 1970 (Courtwright, 2004).

In the climate of change between the first English-language publication on LSD in 1950 and the end of psychedelic study in the 1970s a large and disjointed library of information was accrued. The lack of standard protocols for psychedelic therapy and the challenges in creating a viable control for the powerful effects of psychedelics made interpretation of this work challenging. I will focus on two research threads that relate closely to the current re-emergence of psychedelic psychotherapy: the Marsh Chapel Experiment and the studies done on the use of LSD with alcoholic patients. The Marcsh Chapel Experiment (also known as a The Good Friday Experiment) was conducted at Marsh Chapel at Boston University where Walter Panhke (1963) gave one group of divinity students psilocybin while another control group received a high-dose of niacin. Niacin was chosen as an 'active control' because it produces notable physiological changes. Of course, there are no true controls for psychedelics since the effects of psilocybin are not comparable to niacin or other non-psychedelic drugs. Nearly all the students who received psilocybin reported having profound religious experiences (Panhke, 1963) including noted religious scholar Huston Smith who described the experience as his first personal experience of the divine. What Panhke's study showed was the power of preparation and environment, or 'set and setting'. It also suggested that under appropriate conditions it may be possible to predictably induce powerful mystical experiences.

The second series of experiments were conducted across North America between the late 1950s and 1971 attempted to aid people in stopping dangerous alcohol use with psychedelic psychotherapy. Overall, these experiments were plagued by poor and inconsistent methodologies, partly because the methods of psychedelic psychotherapy were being developed at the time (see Mangini, 1998 for a review of methodologies). They were halted when legislation prevented access to LSD, and the psychiatric community became deeply skeptical of psychedelics despite the powerful testimonials of participants. However, a recent meta-analysis of data from the most rigorous of these studies has concluded that despite their limitations they show that a single dose of LSD within the context of psychotherapy significantly reduces alcohol consumption (Krebs & Johansen, 2012). The landmark results of these two programs are the antecedent and catalysts of the current interest in psychedelic therapy.

Re-appearance of Research on the Topic

Today, new research at some of the country's most respected institutions has reanimated the field of psychedelic psychotherapy. One of the first of these studies performed in the United States was published a decade ago by Roland Griffith's team at Johns Hopkins (Griffiths et al., 2006). It is worth re-stating their results here. Thirty volunteers were given one low and one high dose of psilocybin (at one month apart) and their experiences were assessed soon after and 2 months after the experiences. Over 70% of participants reported having a mystical-type experience, and nearly 30% reported that these were *the single most important experiences in their lives*. A follow-up study from 2011 found similar results, with associated positive changes in behavior and attitude that *were maintained after 14 months* (Griffiths et al., 2011). Since the publication of the first of these studies there has been a steady expansion of psychedelic studies conducted at institutions across the country (For recent reviews see: Davis, 2012; Marsa, 2014). The preliminary results of those studies are very promising. In 2006 Moreno and colleagues published a study on the effect of psilocybin for symptoms of obsessive compulsive disorder in 9 patients after case reports of efficacy suggested it may be helpful. Amazingly they found symptom reductions of between 23%-100%, which mostly lasted over 24 hours after a single dose. Perhaps most

astonishing was that the dose of psilocybin did not alter efficacy, suggesting that sub-psychedelic doses may be just as effective (Moreno, Wiegand, Taitano and Delgado, 2006). In the last few years studies have been published showing a very strong effect of psychedelics in the treatment of anxiety related to terminal illness (Gasser et al., 2015), for the cessation of smoking (Garcia-Romeu et al., 2014), and in their ability to change personality traits of openness long past the age at which personalities are thought to become rigid (Maclean et al., 2011). In all these cases (due to federal funding restrictions) there were relatively few participants, however, the results of each showed very powerful, statistically significant effects.

The Goal of this Thesis

The field has expanded and yet the clinical language of psychedelic experiences has not. As of now most social work and psychology literature has been silent on the topic of psychedelics in therapy. A search of the PsychINFO database limited to peer-review articles published since 2000 returns only a handful of articles on the topic. This should be alarming. Rick Doblin, a longtime advocate for the safe use of psychedelics in therapy believes that the use of LSD for the treatment of anxiety in terminal illness is likely to gain FDA approval in the next ten years (Doblin, personal communication). Yet despite the positive data and broadening public awareness of psychedelic psychotherapy there has been no reexamination of the theoretical discourse about psychedelics to help us understand what these substances do and how they can be used most successfully. This is not to say that earlier scholarship has diminished in value. On the contrary, I believe that much of the work done by Stan Grof, including his seminal book *LSD Psychotherapy* (1980/2008) are invaluable today. However, without an active discussion within the professional literature I worry that psychedelics will seem too foreign or too frightening to be adopted by practicing clinicians. This would be a profound waste of a remarkable moment for our profession.

Katherine MacLean, a research scientist on the Hopkins team, has warned that progress on psychedelic therapy will be hampered until we can create a conversation that can include more clinicians, both psychiatrists and therapists (MacLean, 2013). She suggested an analogy with meditation, a field that had languished in the fringes of scientific research for decades, until Jon Kabat-Zinn began speaking of

'mindfulness' in place of 'meditation' as a treatment for anxiety. 'Mindfulness' became a way of bridging two separate communities that were skeptical of each other and that did not share a common vocabulary. Today mindfulness/meditation has become a widely accepted treatment intervention with a bedrock of data to justify its use in a multiplicity of situations (MacLean, 2013; Davis & Hayes, 2011).

This thesis is my attempt to bridge some of the mainstream ideas of psychotherapy with those of the psychedelic community. My hope is that as more data in support of the use of psychedelics emerges, we in the field of social work and psychotherapy can have a parallel conversation about how we can use these tools and how they may affect our clients. I believe that many of our clients could quickly gain from these therapies as most psychedelic modalities are short-term therapies consisting of between 6 and 8 visits. Perhaps ironically to some, these therapies have a long history of success as a part of substance abuse programs, a particular vulnerability for people living in poverty (Grof, 1980/2008; Krebs & Johansen, 2012). As therapeutic relationships are being shortened (under pressure from insurance and government agencies) any modalities that quickly engage with the dynamic and deep-rooted causes of our fears and pathologies will be advantageous to clients. It will be especially beneficial for those that cannot afford to pay for therapy.

In the next chapter I will describe and define the psychedelic therapeutic experience. In chapter three I will approach the phenomenon of the psychedelic experience through the ideas of existential psychotherapy, using the ideas of Irvin Yalom to interpret the experiences of people undergoing high-dose psychedelic therapy. This approach wrestles with the internal, subjective experience of people in the psychedelic state. However, in chapter four we will consider what recent advances in neuroscience can tell us about the functioning of the brain in the psychedelic state. This observational approach allows for an objectivity that suggests the underlying biological mechanisms of both health and pathology. Finally, in chapter five, I will consider how these perspectives, different though they are, provide a complimentary approach to interpreting the psychedelic state. Further, I consider the implications of these findings and what they might mean for how we understand the pathological antecedents of civilization such as depression and anxiety.

CHAPTER TWO

Phenomenon Chapter: Defining Psychedelic Psychotherapy

The Psychedelic Experience in Therapy

It became clear to researchers in the 1960s that psychedelics alone, while very powerful, were not enough to predict an outcome. Some people would indeed have transformative positive experiences, some would find themselves entertained without further positive effect, while others felt terrified and deepened their psychological crises. As Stan Grof (1980/2008) put it in his seminal book LSD Psychotherapy "there seems to be a general agreement at present among LSD psychotherapists that the therapeutic outcome of LSD session depends critically on factors of a non-pharmacological nature" (p.27). That is to say: it's not about the drug. The psychedelic is a catalyst, but what exactly in catalyzes depends upon a number of other variables. Most famously this was "set and setting" - meaning the mind-set of the participant and the setting within which the session took place. Researchers and therapists recognized several other factors including the relationship with the therapist (or guide) and the type of guidance that is provided.

There are two main strands of psychotherapy with psychedelics. The first utilizes low-doses of drug within a long-term therapeutic relationship to accelerate the therapy process. This form of therapy is believed to increase the transference relationship and loosen defenses, thus it leans heavily upon the relationship between client and clinician. The second is generally referred to simply as 'psychedelic psychotherapy' and uses psychotherapy as a preparation for, and integration of, high-dose psychedelic experiences. Clients are given support throughout their drug experience, however, the experience is largely internal and not between client and clinician. This thesis is focused upon this high-dose psychedelic psychotherapy which has been the primary subject of the recent revival in research.

What is Psychedelic Psychotherapy?

Jefferey Guss (2013) is a professor of psychiatry and runs the psychedelic psychotherapy training program at New York University. He defines psychedelic psychotherapy as "a collection of psychotherapeutic processes that are facilitated by psychedelic agents". The reason for such a broad definition is that the psychedelics are a catalyst, and not the therapy alone. The nature of the therapy depends on the goals of treatment. Psychedelic use in therapy is not repeated often, so the drugs are used in discreet times and for particular purposes. For example, current studies are looking at the use of psychedelics for nicotine addiction, death anxiety that accompanies terminal cancer, in the treatment of depression, and for the purpose of facilitating creativity. Programs are designed specifically with these goals in mind.

Still, most psychedelic psychotherapy protocols follow a format that is shared across research studies. These characteristics are taken from both previously published research as well as a long tradition of information sharing within the underground therapeutic community (see, for example, the work of James Fadiman (2013), a noted underground therapist). The form that current methods take has drawn from many therapeutic traditions including humanistic, psychodynamic, narrative, and cognitive traditions. These methods also draw from shamanic and religious sources because these traditions have explicitly identified methods to attain and manage ecstatic and mystical experiences. As Dr. Jeffery Guss says, "What we do is not shamanic nor neo-shamanic healing, however it does absorb many of the core teachings and wisdom that comes from these teachings" (Guss, 2013).

Conceptualization and Methodology of the Phenomenon

In this chapter I hope to elaborate on the unique therapeutic protocol used in most psychedelic psychotherapy, as well as some background necessary for understanding these chemicals and the experiences that they can produce in therapy. Lastly, I will briefly describe Stan Grof's conceptualization

of what happens in the psychedelic experience as it was (and perhaps continues to be) the most widely accepted theoretical conceptualization of the psychedelic experience.

What qualifies as a Psychedelic & Nomenclature about Psychedelics

The term *psychedelic* was coined by Humphry Osmond in correspondence with Aldous Huxley. Osmond and Huxley had been searching for a term that encapsulates the effect of the drug, and Osmond chose psyche-delic as a compound word from the Greek words *psyche* (for mind or soul) and *deluon* (meaning to make visible, or reveal; Hopkins Tanne, 2004). The resulting meaning is according to Osmond "mind-manifesting" (Osmond, 1957). I have chosen to use this term because I believe it best describes the action of these substances and avoids some of the assumptions of other ways of describing these drugs.

Other prominent terms for these substances include "hallucinogen" and "entheogen". Hallucinogen suggests that they induce hallucinations, but because this is not the most prominent feature of these drugs (some people do not get any visual distortions) I have chosen to avoid this term.

The term *entheogen* was coined by a group of scientists and writers that included Jonathan Ott and Gordon Wasson and means "God within us" (Ruck et al., 1979). This was an attempt to better capture the wide historical and cultural uses of these plants and fungi, especially in the shamanic practices from which western science first became aware of the power. Shamanic practitioners often refer to the plants or fungi as 'teachers' with whom they have dialogue. A tension exists between this shamanic perspective and the more medical approach used in this writing. I have adopted the term psychedelic because it is most consonant with the recent studies being done on the therapeutic potential of these substances, but it is important to recognize the great contribution of people from the shamanic perspectives whose work I have used throughout this writing.

In this work I deal with what are known as "classical" psychedelics. These are substances that act upon the brain's serotonin system primarily by activating the serotonin type 2a, 2c, and 1a receptors (for

an in-depth discussion of the pharmacology of these drugs see Baumeister et al., 2014). These include drugs such as LSD, psilocybin, dimethyltryptamine (DMT), and mescaline, as well as a number of substances related to these. It is important to note that many of these substances are found in plants or fungi, such as DMT which is the primary psychedelic compound found in Ayahuasca, mescaline, which is found in the peyote cactus and psilocybin which is found in mushrooms. Despite the number of substances that fit the category of "classical psychedelic" the vast majority of this work is focused on psilocybin and LSD as they are the most-utilized members of the family.

Psychedelics can Produce Widely Variable Experiences

In the case of most psychoactive pharmaceuticals the range of possible effects is narrow and predictable. In these cases, for drugs such as opiates or amphetamines, the effects can be easily categorized and the underlying mechanism can be understood through pharmacology and anatomy. For example, the release of dopamine by amphetamines attaches to receptors in cells of the mid-brain wakefulness circuitry thus causing people to remain awake (Carlson, 2010, p.217). In the case of psychedelics this formula is turned on its head: although many people may take the same substance at the same dose, their experiences may be dramatically different from one another. Some may be very active, moving about, while others may sit listlessly. Some may be lost in the geometric colors they see, others may find themselves in a state of terror or ecstasy. Stanislof Grof, a central figure in the study of LSD and one of the few clinicians to have administered hundreds of LSD session, described it this way:

> The most astonishing and puzzling aspect of the LSD sessions which I observed in the early years of experimentation was the enormous variability among individuals; using the same dose of the same drug under relatively constant conditions, we obtained an extraordinary range of individual responses in various subjects. (Grof, 1976, p.xxi)

The conclusion drawn by most clinicians working in the field is that *a psychedelic experience is not the experience of the drug, but rather of yourself in a different state of consciousness* (Osmond, 1957,

p.421). In addition, as Dr. Jeffery Guss has pointed out, any individuals experience is "embedded inextricably in the knowledge system of the subject and guide" or clinician (Guss, 2013).

If the subjective effects of psychedelics can differ so greatly, then how do we understand what happens when someone takes them? How do clinicians conceptualize the psychedelic experience in a way that captures most people's experiences and provides insight and utility in therapy? These are the central questions I am attempting to begin to answer. Again, Stanislav Grof summarized the conundrum this way):

> LSD does not have any intrinsic therapeutic properties related simply to its pharmacological effects. It is necessary to structure and approach the experience in a specific way to make the emergence of unconscious material therapeutic rather than destructive. (Grof, 1980, p.281)

As alluded to in the previous quote, psychedelic experiences can be shaped by the circumstances of session and the character and expectations of the client. These were initially described as "set & setting" and first studied by Timothy Leary prior to his expulsion from Harvard (Leary et al., 1963). These ideas have been collected and refined by many researchers since that time and can be summarized in the following way: the effects of psychedelics are greatly affected by (1) the participants' preparation prior to the experience which includes information about the drug, a respect for its power, and a degree of self-reflection about the goals of treatment, (2) to the participants' state of mind at the time the drug is taken, (3) and the environment they are in during the experience which includes the people, spaces, and symbols, and sounds in the room at the time of the psychedelic experience (for an extensive review and safety recommendations please see Johnson et al., 2008). Together these are referred to as "set and setting".

It is thanks to this malleability in preparation and circumstance that psychedelic experiences have been conducted ritually for thousands of years, and helps create a role for these drugs in therapy. Johnson et al. (2008) neatly summarized some of the ways in which indigenous cultures have coped with the

unpredictability of psychedelics and the ways in which modern researchers have coopted these ideas (this author highlighted part of the section for emphasis):

> Indeed, some of the safeguards developed for clinical hallucinogen research and expressed in the guidelines presented herein are similar to important aspects of hallucinogen use by indigenous cultures. These common themes are structured use (expressed as ritual in indigenous use), restrictions on use including the need for guidance and appreciation of hallucinogens' powerful psychological effects (expressed as reverence in indigenous use). We believe that these commonalities are more than coincidence. The unique pharmacology of classical hallucinogens may have shaped convergent practices across independent cultures. (p.615)

It has been well-documented that indigenous use of psychedelics often leads participants to experience feelings of communion with spiritual beings and to feel as though they'd gained insight about themselves or the world (See for example Shultes et al., 2001). Re-creating these experiences is a central aim of psychedelic psychotherapy.

Psychedelic Psychotherapy: Clinical Uses

A comprehensive protocol for high-dose psychedelic psychotherapy was fully developed at the Spring Grove State Hospital in Maryland in the 1960s and 70s (Grof et al., 1973; Pahnke, 1969). Current research in this field is modelled on this protocol, however, most research protocols include between 1-2 psychedelic sessions whereas clinicians at Spring Grove would often carry out ongoing treatment that included a series of psychedelic sessions of a longer period of time. The stated goals of the researchers at the Spring Grove Hospital were to "maximize the possibility for the psychedelic mystical experience to occur" (Panhke, 1969, p.12) in the hope of easing their suffering. What follows is a brief overview of an idealized protocol for psychedelic psychotherapy and is not meant as a comprehensive statement about

them. Each study has developed their own version of this protocol to best accommodate their participants and goals.

Psychedelic psychotherapy begins with a screening process to avoid giving these powerful drugs to people who may be at risk from the experience. People with high resting blood pressure are excluded because there can at times be a transient increase in blood pressure from psychedelics (information in the section is largely taken from Johnson et al., 2008 unless otherwise noted). In addition, people taking certain antidepressants and antipsychotic agents may be excluded as these drugs can potentiate or otherwise change the nature of the psychedelic. Finally, people suffering from psychotic disorders or with well-documented risk of psychotic disorder should be excluded as psychedelics have on rare occasions precipitated a psychotic episode.

Preparation. The therapeutic program has been described by Panhke (1969) as "an LSD session…embedded within the matrix of brief intensive psychotherapy). The pre-session meetings consist of informing the patient/participant about the risks and effects of the psychedelic and the possible outcomes of their experience (an elaborated version of informed consent as there are many misunderstandings about psychedelic drugs in popular culture). In addition, a lengthy meeting is arranged (often, an entire day) to discuss the patient/participant's life history, struggles, goals for treatment, and to build rapport and trust. Participants are often asked to bring mementos such as pictures that hold special meaning to them. Participants are informed that they may encounter challenging emotions and that when these come up they should (as best they can) resist escaping the content that is producing the emotion and instead 'stay with it'. Finally, a date is set for the psychedelic session.

Session Days. On the day of the session the participant is led into a softly lit and comfortable room decorated with symbols that may hold meaning to the participant as well as natural objects to inspire them (for example, at Spring Grove the clinicians began keeping a single stem rose in the room for each session; Grof, 1980). At the time of drug administration participants may be asked to provide an

"intention" for the session which may help direct the content of the participants experience (Maclean, 2014). In the room is a couch, a stereo system with headphones on which plays pre-programmed music that encourages free thinking (often sparse instrumental music). The participant is given an eye-shade and invited to lie down. There are two clinicians (often one man and one woman) in the room with them for support throughout the day. These are people they met at the preparation session and are specially trained to give aid, largely non-verbally (physical touch when appropriate). During the session most clinicians encourage that participants 'stay inside', meaning keeping the eye-shades and headphones on, as removing them can be a way of avoiding challenging content. Session days may last 10 or 12 hours as the effects of drugs such as LSD may last as long. Toward the end of the session, as the drug effects are wearing off, the clinicians will encourage the participant to begin describing their experience in an effort to begin integrating it into their lives. Further meetings are held over the following day and week to help with this interpretation and integration process.

The Subjective Experience of Psychedelics

It should be clear that individual experiences with psychedelics are heavily influenced by 'set and setting' as well as the choice of substance and its dose. Yet, at the risk of complicating this format, it must be recognized that there is often a pattern to the experience of high-dose LSD and psilocybin. This includes an initial state of confusion, followed by anxiety or sometimes terror, which often subsides into feelings of interest and contentment (often this includes a feeling of gaining insight or knowledge). Finally, these high-dose experiences often cause the familiar world to appear "new" after the experience. The following is an excerpt from Albert Hofmann's book *LSD: My Problem Child* (1979/2009) and illustrates some common experiences when LSD is taken in higher doses. Please be aware that this was his first attempt to take LSD (in 1943) which occurred shortly after his discovery of its effects. This experience does *not* reflect the way in which it is given during therapeutic intervention:

> I had to struggle to speak intelligibly. I asked my laboratory assistant…to escort me home. We went by bicycle, no automobiles were available due to wartime restrictions on their use. On the way home my condition began to assume threatening forms. Everything in my field of vision wavered and was distorted as if seen in a curved mirror. [Once home] the dizziness and sensation of fainting became so strong at times that I could no longer hold myself erect, and had to lay down on the sofa. My surroundings had now transformed themselves in more terrifying ways. Everything in the room spun around, and the familiar objects and pieces of furniture assumed grotesque, threatening forms. They were in continuous motion, animated, as if driven by an inner restlessness…Even worse than these demonic transformations of the outer world were the alterations that I perceived in myself, in my inner being. Every exertion of my will, every attempt to put an end to the disintegration of the outer world and the dissolution of my ego, seemed to be wasted effort…I was seized by the dreadful fear of going insane. I was taken to another world, another place, another time. My body seemed to be without sensation, lifeless, strange. Was I dying? Was this the transition? At times I believed myself to be outside my body, and then perceived clearly, as an outside observer, the complete tragedy of my situation.

It was not until several hours later that Hofmann experienced changed:

> Slowly I came back from a weird, unfamiliar world to reassuring everyday reality. The horror softened and gave way to feelings of good fortune and gratitude…Exhausted, I then slept, to awake next morning refreshed, with a clear head, though still somewhat tired physically. A sensation of well-being and renewed life flowed through me. Breakfast tasted delicious and gave me extraordinary pleasure. When I later walked out into the garden, in which the sun shone now after a spring rain, everything glistened and sparkled in a fresh light. The world was as if newly created.

The Role of Mystical Experiences

> "Our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst about it, parted from it by the flimsiest of screens, there lie potential forms of consciousness entirely different. We may go through life without suspecting their existence; but apply the requisite stimulus, and at a touch they are there in all their completeness, definite types of mentality which probably somewhere have their fields of application and adaptation." – William James, The Varieties of Religious Experience, published in 1902

One of the most cited and dramatic reactions to psychedelic drugs are what can be termed a mystical experience (Doblin, 1991, Griffiths et al., 2006, Panhke, 1963). These have been documented throughout the study of classical psychedelics, and are often understood as 'peak experience'.

Recent studies have shown that mystical-type experiences often correlate with the subjective value of the experience (Johnson et al., 2010), the degree to which the experience triggers personality change in the client, (Mclean, 2014), and even their efficacy in treating nicotine addiction (Garcia-Romeu et al., 2014). It is becoming clear that these experiences may be the most effective catalysts of change for which therapy has been designed.

In an attempt to understand these experiences William James proposed that there are 4 qualities that differentiate a mystical experience (James, 1902, p.380-381):

1) Mystical experiences are *ineffable*, meaning that it "defies expression; that no adequate report of its contents can be given in words."
2) Mystical states also have a *noetic quality*, meaning that they "are states of insight into depths of truth unplumbed by the discursive intellect."
3) These experiences are transient, as they cannot be maintained.

4) Lastly, mystical states are experienced passively; that is, they give the feeling that something is happening to the person that is beyond their control, or as James put it "the mystic feels as if his own will were in abeyance and indeed sometimes as if he were grasped and held by a superior power."

Based on these ideas and further elaboration by Stace (1960) a number of questionnaires have been developed to assess mystical experiences (Hood et al., 1993). The State of Consciousness Questionnaire (SOCQ) was developed in order to measure changes in consciousness, and to specifically capture single-even mystical experiences like those seen in psychedelic studies (Maclean et al., 2012). The SOCQ was developed using Pahnke's Mystical Experience Questionnaire (MEQ; Pahnke, 1969) which was created specifically in the use of psychedelics (Griffiths et al., 2006; Maclean et al., 2011). The SOCQ measure mystical experience on seven domains of mystical experience originally elaborated by Stace (1960) and borrowed here from Griffiths et al. (2006):

1) Internal unity (pure awareness; a merging with ultimate reality)
2) External unity (unity of all things; all things are alive; all is one)
3) Transcendence of time and space
4) Ineffability and paradoxicality (claims of difficulty in describing the experience in words)
5) Sense of sacredness (feelings of awe)
6) Noetic quality (claim of intuitive knowledge of ultimate reality)
7) Deeply felt positive mood (joy, peace, and love)

Following the work of previous decades (Grof, 1978) the work of the Griffiths group at Johns Hopkins Medical Center suggest that peak or mystical experience may be the best predictor of long-lasting positive change (Garcia-Romeu et al., 2014, Griffiths et al. 2008; Maclean et al., 2011). Even so, without reaching the level of mystical experience (by giving lower doses of LSD), Gasser and colleagues

have shown that long-lasting positive effects on anxiety in people suffering from life-threatening illness (Gasser et al., 2014).

So how are these profound changes to be effectively pursued in the clinic? Dr. Sean House spoke with many people involved in psychedelic psychotherapy prior to it was discontinued during the late '60s and early '70s and asked them what contributed to efficacy of a psychedelic session. He organized these into 5 common processes 'in psychedelic-induced psychospiritual change' (House, 2007) as listed below:

1) Intention – This refers to "the intent, expectation, and preparations for each psychedelic session provide the foundation for each particular experience"
2) Ingestion – Or "the particular drug ingested and dosage"
3) Insight – The ability of psychedelics "to generate vast changes in perception"
4) Integration – refers to "the cognitive process of making meaning of the psychedelic experience and incorporating that meaning into one's perspectives on self and the world."
5) Implementation – which requires "acting in ways that are congruent with what was learned" which has been recognized as "the gold standard of psychotherapeutic success", or differently, is the way in which change is measured.

Indeed, these principles have been doggedly pursued by the Johns Hopkins research group headed by Roland Griffiths and have shown that mystical experiences can be safely induced in a majority of study participants (Griffiths et al., 2008).

Unfortunately, our conceptual formulations have not kept up with the recent and rapid pace of research. As stated in the previous chapter, the lack of theoretical conceptualization is alarming because these ideas are necessary for active engagement of therapists which in turn contributes to the design and success of experiments. Just as Francis Bacon's ideas contributed to the formation of the scientific method contributed to the flowering of scientific inquiry during the European Enlightenment, our ideas about the brain and psyche influence how we think about people and how we choose to approach the

search for better methods of helping people. There is a need for us to reassess how we comprehend the psychedelic experience both for patients (increasing predictability of their experience and better preparing them for it) as well as for the design and utility of studies on the topic.

To this date the most comprehensive and influential model of the psychedelic experience has been proposed and promoted by Stanislav Grof. What follows is a short description of what he developed at length in Reals of the Human Unconscious (1976) followed by additional ideas contributed by current researchers. Grof proposed a four-level idea about the psychedelic experience, from most superficial to the deepest level. He further suggests that it is an oversimplification to consider a person to go through these experiences linearly, as at any stage there may be parts of other levels interspersed (Grof & Halifax, 1977). These levels are:

1) Abstract and Aesthetic – these experiences are common in low-dose settings and include an appreciation of changing colors and kaleidoscopic movements of shapes and forms. According to Grof & Halifax (1977) these experiences rarely have therapeutic consequences or result in meaningful change.
2) Psychodynamic – Grof describes these experiences as being common in psychedelic sessions and that they are "derived from biographical material reflecting emotionally relevant situations in a person's past and present life" including both joyful and traumatic experiences. These can take the form of directly re-living of experiences to "complex mixtures of fantasy and reality" (Grof & Halifax, 1977, p.42). According to Grof, these images can come from both conscious and unconscious parts of the psyche and may have strong therapeutic value.
3) Perinatal – According to Grof and Halifax (1977, p.46) "the most important common denominator of perinatal experiences is their focus on the problems of biological birth, physical pain and agony, disease, decrepitude, aging, dying, and death." They refer to these as "shattering encounters" leading to a "deep realization of the vulnerability and impermanence of the human being as a biological creature" and can "force the individual to question seriously the meaning of

existence" (Grof & Halifax, 1977, p.47-52). Grof stresses the diversity of these perinatal experiences, but sees in them a biological basis: he believes that they are a re-experiencing of the process of biological birth (to which he directly compares them). The perinatal experience culminates in death-rebirth, about which I will quote at length from Grof & Halifax:

> This experiential pattern is related to the third clinical stage of delivery. The agonizing process of the birth struggle culminates; the propulsion through the birth canal is completed and is followed by explosive relief and relaxation. After the umbilical cord is cut physical separation from the mother has been completed, and the child starts its new existence as an anatomically independent individual. The death-rebirth experience represents the termination and resolution of the death-rebirth struggle. Suffering and agony culminate in an experience of total annihilation on all levels – physical, emotional, intellectual, moral, and transcendental. This is usually referred to as an "ego death"; it seems to involve instantaneous destruction of all the previous reference points of the individual. The experience of total annihilation is often followed by visions of blinding white or golden light and a sense of liberating decompression and expansion. The universe is perceived as indescribably beautiful and radiant; individuals feel cleansed and purged, and talk about redemption, salvation, or union with God.(1977, p.51)

According to Grof, these experiences are especially important therapeutically and can catalyze dramatic changes in personality and behavior.

4) Transpersonal – During transpersonal experiences people feel as though their consciousness has expanded beyond normal ego-boundaries and may encompass different times, places, creatures, or even single cells. Some people feel themselves fully embodied as an animal or else that they are part of the entirety of human consciousness outside of time, or as Grof put it "all of the elements in the universe in its present form and throughout its history can be consciously experienced by the individual."(p#) In this transpersonal realm patients often feel that they are watching the unfolding of consciousness and that the physical boundaries of existence cease to matter. This can create a sense of observing the "ever-unfolding drama" of consciousness and

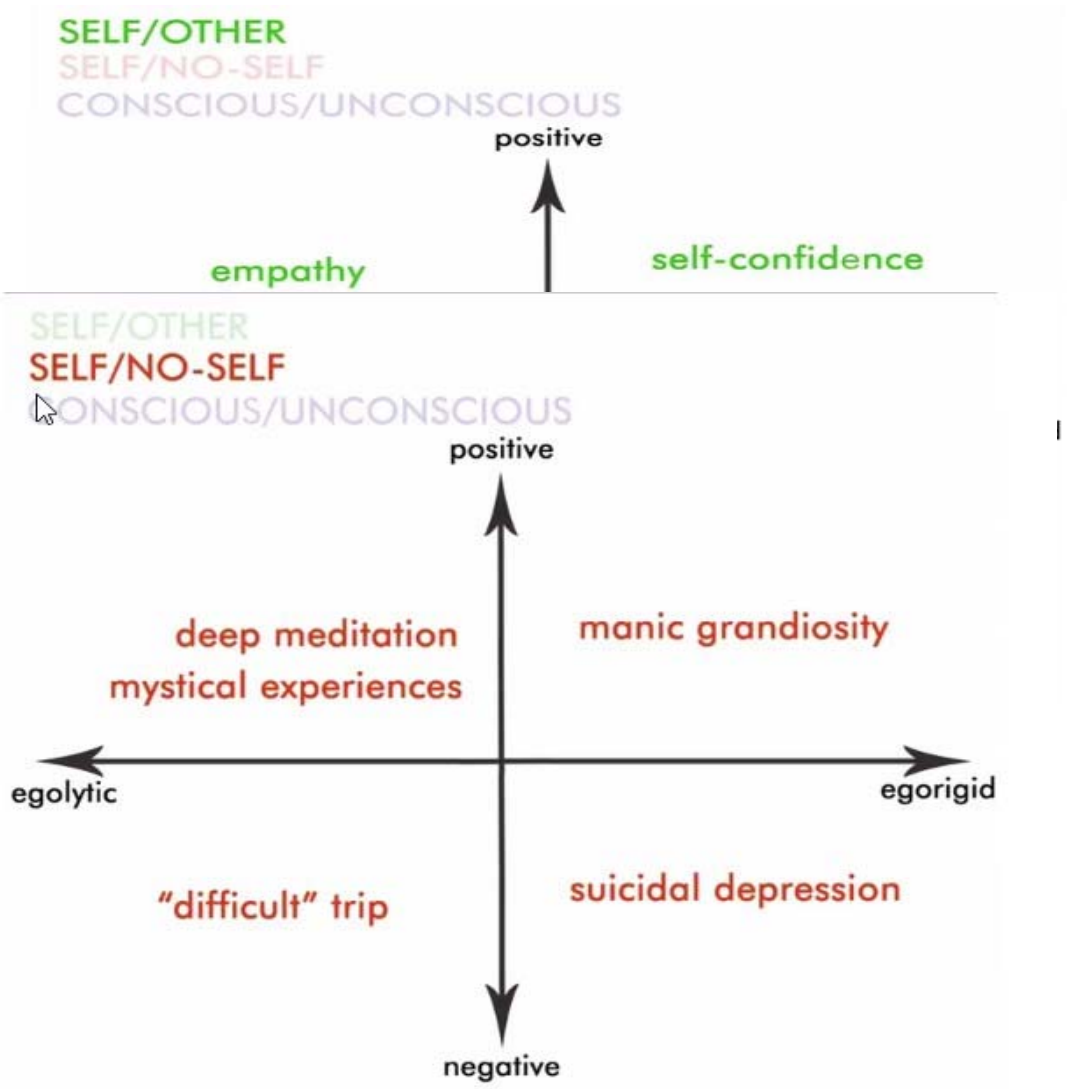
limits the emotional salience of the person's struggles which then may not require ego defenses to protect against. The transpersonal experience is, according to Grof, also an important therapeutic experience and is more likely to occur when more psychedelic sessions occur.

Grof's formulations reflect his psychoanalytic training as well as the particular time during which he formulated his ideas ("the phenomenology of psychodynamic experiences in LSD sessions is to a large extent in agreement with the basic concepts of classical psychoanalysis" Grof, 1976, p.45). However, this topographical arrangement of experiences has been greatly influential. Grof elaborated this model to great depth in *Realms of the Human Unconscious* (year) in which he categorized the common themes of LSD experiences in the psychodynamic and transpersonal realms. Of particular importance for this analysis is the COEX (systems of condensed experience) which he designed to understand the psychodynamic experiences of psychedelic sessions. Grof defined these as "a specific constellation of memories consisting of condensed experiences (and related fantasies) from different life periods of the individual…the memories belonging to a particular COEX system have similar basic themes or contain similar elements and are associated with a strong emotional charge of the same quality" (Grof, 1976, p.46). Grof understands that elements of the deep past as well as more recent memories can populate a particular COEX, and he saw the older memories as occasioning regressive experiences. The COEX may feel like a thread that connects experiences that are separated by years into an emotional theme. In the LSD session these experiences are felt as happening simultaneously, hence forming the COEX. Different COEXs may have positive or negative emotional meaning and have a tendency to take hold of the person in a way that may make switching to a different affect very difficult. Grof believed that the memories that constitute the COEX have great fidelity to people's lived experience.

Within the history of psychedelic studies, Stanislov Grof is a dominant figure which may explain why current researchers have avoided proposing competing models. Grof's psychoanalytic language and belief in the accuracy of both biographical (psychodynamic) and out-of-body (transpersonal) experiences has challenged my own reading of his work. However, his formulation of the COEX system is a

meaningful analogy for understanding how affective experience across a lifetime can collapse together telescopically and how these experiences can be so strongly felt. If we imagine joy as not simply the joy of any one thing, but instead all the instances of joy that we have ever felt, each of them fully experienced together at the same moment, then you can convey some of the experiences that people undergo in these states.

In a recent talk at the Horizon's conference in New York City, Dr. Jeffrey Guss and Alexander Belser presented a new conceptual framework for understanding the psychedelic experiences (Paleos. Guss, and Belser., 2014). They are part of a group at NYU studying the effects of psilocybin on anxiety in people facing terminal illness. During the study they struggled to find a common language to use when discussing patient's experiences, and particularly in finding a non-judgmental vocabulary for those experiences (as Dr. Guss put it during his talk "in the training I received as a psychiatrist there was a lot more emphasis placed on how to get people to stop hallucinating; nobody ever talked about LSD or psilocybin mushrooms as anything but substances of abuse". They devised the term ego-lytic to describe the situation in which ego boundaries (or self-boundaries) become porous (Paleos, Guss and Belser., 2014). They described three specific boundary situations: self/other, existence/non-existence, and conscious/unconscious. For each of these boundaries a person may move from more to less porous boundaries, or from egolytic to egorigid conditions, and along this spectrum the particular experiences may create positive or negative affect. To express these situations they created the following graphical illustrations (captured from their talk). Notice that each quadrant represents different types of experiences, some of which may be considered pathological under certain conditions:



As the researchers point out, there is a degree to which these boundaries fluctuate over time, or even throughout the day (for example, when daydreaming) and that we have natural capacity to alter these boundaries. The psychedelic drugs may exaggerate this natural condition.

In some ways these maps closely relate to the topography of Grof. The psychedelic experience can create egolytic states first in the conscious/unconscious boundary which corresponds to Grof's psychodynamic state, followed by a dissolution of self (in the self/no-self boundary condition) as the "system of condensed experiences" collapses the perception of time (and may move from the "bad trip" experience toward the "mystical experience" as labelled on the figures above), before the final state of

rebirth dissolves self/other boundaries and leads to feelings of boundlessness. The egolysis of the self/no-self boundary would correspond to Grof's perinatal experiences, and the egolysis of the self/other boundary may correspond to a place between the perinatal and transpersonal condition (depending on the particular experience and interpretation of the experience). As one of their clients put it in an accompanying video, "There was no difference between that infinite sea and me." (Paleos et al., 2014. P#). These concepts will be revisited in the analysis chapters to follow.

CHAPTER THREE

First Theoretical Perspective: Existential Psychotherapy

> 1Now the serpent was more crafty than any beast of the field which the LORD God had made. And he said to the woman, "Indeed, has God said, 'You shall not eat from any tree of the garden'?" 2The woman said to the serpent, "From the fruit of the trees of the garden we may eat; 3but from the fruit of the tree which is in the middle of the garden, God has said, 'You shall not eat from it or touch it, or you will die.'" 4The serpent said to the woman, "You surely will not die! 5"For God knows that in the day you eat from it your eyes will be opened, and you will be like God, knowing good and evil." 6When the woman saw that the tree was good for food, and that it was a delight to the eyes, and that the tree was desirable to make one wise, she took from its fruit and ate; and she gave also to her husband with her, and he ate. 7Then the eyes of both of them were opened, and they knew that they were naked; and they sewed fig leaves together and made themselves loin coverings. – Genesis, book 3:1-3:7

Part of my goal is to interpret the effect of the psychedelic peak experience through the perspective of existential theory. To set the stage for this discussion I will introduce the relevant historical aspects of existential thinking followed by a discussion of the theoretical lenses used to conceptualize the psychedelic experience: those of the sociologist Ernest Becker and the psychotherapist Irvin Yalom. The background that follows is not meant to be a comprehensive presentation of those whose work is considered existential, but rather to illuminate the guideposts that have led to my own formulation of this field and to hint at the context within which existentialism developed.

That death is the inevitable corollary of life continues to be the central engine of existential thought. Almost universally, existential thinkers assume that there is no continuity of our 'selves' beyond corporeal death (i.e. a soul). Existentialists argue that this completeness of death, its utter contradiction with what came before, must change how we live.

Humans may be uniquely aware of mortality; able to witness, describe, and convey its frailty in words. Yet we are animals that possess the unique ability to use language which has allowed us to see the world from god-like vantage, to pass on knowledge and control our environment, but also to become aware of life's inevitable end. Thus, like Adam and Eve, we may have discovered the fruit to know good and evil and in this way we are like Gods. However, we also carry with us the foreknowledge of our own deaths, and this knowledge haunts us.

Although death has long been a thematic obsession of human cultures, it was the 19th century European interest in the experience of the *individual* (e.g. Kierkegaard and Nietzsche) that differentiated this period of thought. Nietzsche's story of the madman who yelled "God is dead…we have killed him!" dramatized the changes brought about by the weakening influence of the church in Western Europe. Religious power had forcefully crushed discussion of topics that could be considered heretical. Without ideological policing, many viewpoints were brought into public conversation, including agnostic and atheist positions. Nietzsche and others argued that if there is no God then there cannot be any *objective* value system. Rather, most people absorb the values of the culture within which they live without examining them. Nietzsche and Heidegger saw it as the project of each individual to discover their values and to pursue a life that is in line with those values. This is both a terrifying and freeing proposition: we are able to create the meaning we take from our lives, but we may also succumb to the yawning abyss of the indifferent, valueless, and meaningless world around us.

Parallel to this the twin 19th century development of psychology as both a science and a healing method made our experiences grist for analysis. Finally, in the early 20th century the trenches and ovens of Europe led many people to question the institutions and ideologies from which they had previously drawn meaning.

The ideas that death is both inevitable and permanent, and that humans are uniquely aware of their mortality are the baseline assumption of existentialism. Existential thinkers became popular in the post-war period as a way of managing the terror of the war years in Europe. From this starting-point existentialists have mapped the ways in which humans have built their lives (and societies) in the shadow of their own mortality.

Background on Existentialism: Developments in Social Psychology

This personal quest for understanding and meaning promoted by the early existentialists became important during the destructive first half of the 20th century. Both world wars served to destroy the empires, nation-states, cultures, and institutions that created meaning for many people of Europe. The very structures that Kierkegaard and Nietzsche had railed against were now gone or hobbled. In that

destructive moment all value and truth became relative. Like someone who has come close to death and survived, Europeans were then tasked with re-assessing the meaning of European culture, how it had led to a near-suicide, and for deciding, as individuals, what they believed and who they were. But what information could they use to make these decisions?

That death could be sudden, random, and purposeless, that so many people could be lost in so short a time, that justice and ideology could feel so alien, forced a tremendous reevaluation in the hearts of many people. Some of the greatest literature of this period attested to the struggle for meaning after terror; see for example *All Quiet on the Western Front* by Erich Maria Remarque (1929), Ernest Hemmingway's *The Sun Also Rises (1926)* and *The Plague* by Albert Camus (1947).

In the wake of the World Wars, western writers, sociologists, philosopher, and psychologists attempted to understand how seemingly sane people could, as the Nazi Germans had, perpetrate mass murder and what such behavior meant about humanity. Some notable works in this vein were those of Hanna Arendt, Staley Milgram, Albert Camus, Viktor Frankl, and Rollo May. Indeed, Frankl and May both survived the Nazis and went on to develop therapeutic approaches based on their conclusions about life and meaning. They both sought to understand the ways in which people manage anxiety and fear in their psyches. It was Frankl's experience in a German concentration camp that led him to reflect upon the way in which people formulate meaning as a way to combat the despair caused by the meaninglessness of life (see Frankl, 1946/2006).

However, it was Ernest Becker who applied these analyses more broadly into a consideration of how the very structure of society allows us to escape the fear of death. His writing often echoes Nietzsche and Kierkegaard in regard to the terror of living without the grounding effect of social ideas.

In his most celebrated book, *The Denial of Death* (1973/1997), Becker lays out his formulation which I will present briefly here because of the value that his position has had for my understanding of psychic development. Becker began by pointing out that humans are animals, and as animals we have evolved to manage the threat of death. From a Darwinian perspective there are two main drives for individual behavior and evolution: the drive to stay alive and the drive to procreate. Indeed, the fear of

death is an instinctual learning mechanism in mammals so that they can recognize threat, as when a squirrel associates a barking dog with threat. Of course, humans have this too and according to Becker "this fear [or terror] is actually an expression of the instinct of self-preservation, which functions as a constant drive to maintain life and to master the dangers that threaten life."(Becker, 1973, p.42). Whereas animals often use their physical attributes such as strength (elephants), speed (rabbits), or chemical means to protect themselves from an early death (skunks, poison dart frogs), humans are naked apes and have little in the way of these attributes. Instead, we have an intelligence and communication ability that allows us to imagine the future and work cooperatively to protect ourselves with clothing, guns, and medicine (Salomon, 2011).

However, these abilities also produce unexpected consequences. We have a unique problem in nature: because of our intelligence we become aware of our own mortality, that the end is definite, and can imagine all the terrifying ways in which one may die. This paradox was described by William James in his *Varieties of Religious Experience*:

> In short, life and its negation are beaten up inextricably together. But if life be good, the negation must be bad. Yet the two are equally essential facts of existence; and all natural happiness thus seems infected with a contradiction. The breath of the sepulcher surrounds it…the fact that we can die, that we can be ill at all, is what perplexes us; the fact that we can now for a moment live and are well is irrelevant to that perplexity. We need a life not correlated with death, a health not liable to illness, a kind of good that will not perish, a good in fact that flies beyond the Goods of nature. (James, 1902, p.108-109)

Because of this problem humans must come up with a unique way of managing what could become overwhelming terror. The central question is: How, in the face of the absolute knowledge of our own death, can we continue as though everything were fine? Or as James put it, how do we find "a health not liable to illness"? Becker suggests that we repress thoughts of death with the aid of cultural identities that build self-esteem. Cultures also give us methods of symbolically achieving life beyond our death: people continue to 'live on' through their children, through their works, and by identifying with

institutions such as countries or professions. He points out that "all historical religions addressed themselves to this same problem of how to bear the end of life" (Becker, 1973/1997, p.22) and that society and religion provide for us many ways to live beyond our own lifetime both symbolically and literally (e.g. afterlife). In Becker's telling, by achieving socially agreed-upon goals such as professional success and recognition within our communities, we also develop self-esteem. This self-esteem acts internally to insulate us from thoughts of death.

A group of sociologists led by Sheldon Solomon and Jeff Greenberg have developed Becker's ideas into Terror Management Theory (TMT) from which they were able to test the hypothesis that increasing a person's awareness of death (mortality salience, MS) would lead to a deepening connection with parts of their cultural identity and self-esteem that protect them from MS. Indeed, studies have found that unconscious reminders of mortality lead to people feeling more closely connected to their country, religion, and political views. Conversely, people become more aggressive toward people from different countries, religions, or those who hold different political views (reviewed in Greenberg and Arnedt, 2011). The second defense of self-esteem acts similarly, with participants recommitting to extrinsic goals such as career and financial goals when presented with mortality reminders. Interestingly, these results rely on having the MS be unconscious. When people are reminded of death they first react by reducing extrinsic goals, only to inflate them once the mortality reminder escapes consciousness (Kosloff and Greenberg, 2009).

Existential Psychotherapy and the Psychology of Death Awareness

The American psychotherapist Irvin Yalom (1980) is the most successful exponent of existential psychotherapy, and the sections that follow are largely based on his text Existential Psychotherapy. Yalom's existential psychotherapy was developed in the psychodynamic tradition that began with Freud. As I use it here psychodynamic refers to the belief that there are *internal conflicts* within us at varying levels of consciousness that shape our behaviors and emotions. However, Freud sees the central conflicts arising from suppressed instincts (especially sexual and aggressive urges). However, Yalom and his acolytes see the central conflicts of personality arising from ultimate concerns, "the givens of existence"

(p.8) first among them is death. The four ultimate concerns in Yalom's constellation of conflicts are: death, freedom, isolation, and meaninglessness. A conflict exists between our knowledge that death is inevitable and our desire to continue to live. So when a person becomes aware of these 'ultimate concerns' they respond with anxiety. The awareness that death is an end to consciousness results in a confrontation with nothingness, the terrifying abyss. To protect ourselves from anxiety we develop ego-defenses that "restrict growth and experience" (p.10) which can lead to psychopathology.

In Yalom's view, most people develop "denial-based strategies such as suppression, repression, displacement, belief in personal omnipotence, acceptance of socially sanctioned religious beliefs that "detoxify "death, or personal efforts to overcome death through a wide variety of strategies that aim at achieving symbolic immortality." (1980, p. 111). He considers this a normal developmental step, yet some people experience death anxiety so acutely that it spills into other realms of their experience which causes a reliance on these defenses. Yalom (1980) gives the example of a client who compulsively participated in extramarital affairs that produced a masking anxiety that prevented interrogation or confrontation with the root death concerns.

Death Anxiety and the Psychedelic Peak Experience

Death anxiety is common as clients approach the peak psychedelic experience. The following passage is a patient's description of his psilocybin experience while participating in the Johns Hopkins psilocybin study (Maclean, 2014; sections highlighted by this author):

> These are my visceral fears, I know that now. I experience them one by one and together in combination with the intensity of an electric chair. First there is the pain. Things hurt. My right elbow hurts and my back hurts, but it is all drawn together by my blood hurting. My blood is gone and I know it is my life-force. I want it back to make the pain go away. The pain is maroon and purple or devoid of color. Then there is the agony. It comes in waves and I am having trouble writing about it. The agony has no color. I am afraid of it and don't understand why it exists. All at once I feel it again and again. Every cell in my body hurts. I feel this as real. The pain is real like I am being electrocuted. The life force is in me and swells in me during the

> waves of agony, and also shoots out of me so that the room is also in agony. Everything is. My guides are with me and are in the same energy, but they can't feel it. I'm so happy that they can't feel it. I want to take the agony away from everyone. I'll take it I say. I want the agony so that somebody else doesn't have to feel it. I do not understand why this is happening or why I would create this for myself. **I'm abandoned and not taken care of**. I feel like an inch of my blood is taken from my body as I lay on my back. I don't feel blood in my hands; **I think there are holes in me and I am dying**. I know I'm supposed to embrace the dying and my guides remind me but I can't breathe. Everything is heavy on me and the world, like an ocean of energy, is on me. **And I am dead**. I don't like it. **I stay dead for a while and it is full of dark emotion but full**. **Death is a lack of control and I don't like it. Death is the end of beauty; death is the unknown. Despair.** It is the desire that is the problem, I say. **This means that I want approval that I can't get.** I want to be interesting and special and normal, all at the same time. The problem is [that] I want these things but I don't want to want them. I so just want to accept whatever is. The desire vibration/sound turns into selfishness, guilt and despair. Nothing is real, nothing matters, nothing I do will matter. There is nothing. Despair is black and so am I. Then it gets horrible. I generally feel that everything is not going to be ok. **I am not going to be ok, and nobody is going to be ok.** I am reassured that I am going to be ok, but I don't believe it. I even know it is the psilocybin, and I still don't feel that things will turn out fine. This is one of the most horrible things I have ever felt. **I was afraid of the fear and felt out of control**.

Katherine Maclean (2014) explained that this patient felt "shell-shocked" that evening and the following day. However, a week later he "felt invincible", and now, a year after his experience, he feels that it has "permanently changed his life" for the better.

For many participants death anxiety in the psychedelic state culminates in 'ego-death': an experience of dissolution followed by a profound calm and sense of unity with the world. This breakthrough experience of a shattered ego-self is what we call the mystical experience which is thought to be the source of healing in psychedelic psychotherapy. Yet, in the story I presented above there was no

such release during the psychedelic experience. It was not until several days later that the patient came to feel the positive impact of his experience, one which he now believes changed his life for the better. It would seem that healing can exist without a mystical experience. It may be that it is the naked confrontation with death anxiety that has given him healing. This is in line with Yalom's approach in psychotherapy as he sees death awareness as an important therapeutic tool which creates "a radical shift in life perspective" (Yalom, 1980, p.154). He explains that confrontations with death anxiety "propel one into a confrontation with one's existential situation in the world" which "has the power to provide a massive shift in the way one lives in the world" (Yalom, 1980, p.159). Indeed, this is what we see with psychedelic psychotherapy.

In Ernest Becker's formulation, we use our identity and self-esteem to protect from the subconscious threat of death anxiety. Our identity expands from our core self to encompass our social roles such as our profession, our family identity, and our cultural and national identities. When we feel threatened these identities reassert themselves to protect us from mortality concerns. Or as Yalom puts it "the neurotic not only protects his or her core but defends many other attributes (work, prestige, role, vanity, sexual prowess, or athletic ability) with the same intensity" as their core selves (Yalom, 1980, p.163). The loosening of these identity markers (both social and personal) can help explain some of the results of psychedelic psychotherapy. As Maclean et al., (2011) have shown, adult participants in psilocybin trials show increases in the personality trait of openness as measured by both self-report and interviews with family and friends. People who experience ego-death no longer seem to feel the need to protect their identities so closely which allows them to increase their openness to new ideas and experiences since there is no cost to their worldview or self-image.

Contrary to my argument, many people who experience serious confrontations with death anxiety such as near-fatal illness, violence, and trauma, do not feel freed from their anxiety but rather develop serious pathologies such as anxiety, post-traumatic stress disorder, and depression. How can we square the very opposing results of intense death anxiety? In response to what they see as a cynical worldview of many TMT researchers Martin, Campbell and Henry (2004) advanced an idea that helps unify both ideas.

They collected experiences of people who have experienced near-death experiences, as well as people diagnosed with fatal illness. They found that two groups emerged: those people for whom the experiences triggered severe anxiety and pathology, and those for whom they resulted in growth, openness, and a positive worldview. Based on these works the authors hypothesize that two components affect the outcome: the person's belief that death was imminent, and the acceptance of this result. The more life-threatening the event, the more likely people were to acquiesce to their fate, and in doing so they gained greater positive aftereffects, became more open, and felt more at ease after the encounter. Additionally, the ever-growing literature on post-traumatic growth underlines some of the ways in which confrontations with death can be positive inflection points in a person's life.

Psychedelic psychotherapy is conducted under conditions that would match the hypothesis of Martin, Campbell, and Henry (2004): patients are given a relatively high dose of psilocybin that overwhelms the ego and they are instructed to accept uncomfortable experiences by 'going toward' their anxiety defenses (Johnson et al., 2008). If these two conditions are met then patients have a high likelihood of experiencing 'ego-death' and a full mystical experience which has been shown to correlate with significant improvements in psychological health. Additionally, because such experiences can be consistently induced under controlled therapeutic conditions, they may allow patients to gain the insight and power of near-death experiences without significant risk.

The existential perspective can help anchor and name the often difficult experiences that people undergo during psychedelic psychotherapy. These experiences are inherently idiosyncratic and peculiar to our biography and temperament. That these experiences follow a pattern despite the variability inherent in psychedelics is itself remarkable. In the next chapter I will present a perspective based on neuroscientific research which uses observational data to better understand the nature of the psychedelic experience. The biological explanation complements the existential perspective and roots it in the physical nature of the body and brain.

CHAPTER FOUR

Second Theoretical Framework: Neuroscience

Introduction to Neuroscience

Neuroscience is the scientific study of the brain and spans topics such as anatomy, physiology and chemistry. Neuroscience can be a good explanatory tool when used to help uncover how the underlying biology of the brain affects our perceptions and actions. People imbue neuroscience with a lot of power and it can also help clients understand/conceptualize what is happening to them as external. For example, conceptualizing adolescence as a time period during which the prefrontal cortex, an area important for planning behaviors, is underdeveloped helps prevent blaming adolescents for behavior that is normal during this time period. Additionally, neuroscience can help to root our subjective experiences in the observable phenomena of the brain. This is particularly important for placing the psychedelic experience onto sure footing. Because psychedelic experiences are unique both to the individual and the moment, it can be a challenge to explain what is going on. Nonetheless, by using careful methods and newer physiological measures of brain activity researchers can formulate hypotheses about the therapeutic effect of psychedelics.

It's important to note that there is a risk of using neuroscience explanations. Because so much faith has been put in the work of scientists, the use of biological terms can mask poor explanations (see for example Weisberg, Taylor, and Hopkins, 2015). People without a neuroscience background find explanations 'seductive' when they refer to actions of the brain. Still, judicious use of biological explanations can help inform theoretical and conceptual frameworks about mind and behavior.

One of the reasons that neuroscientific explanations have such power is their ability to decipher the ways in which our experiences are constructed by the brain. Various experiments and case studies have shown that although we feel as though we experience the world directly, it is the brain that creates the world we experience. For example, the perception that our consciousness resides in our head is

constructed by brain mechanisms. In 2005 Blanke and Arzy showed that stimulating a small region in the area just behind the ears can lead to perceiving the world from outside the body. These induced out of body experiences (OBE) help underline the degree to which our world is created through biology.

In the last few decades scientists have gained the ability to observe real-time activity in the brain as subjects perform various tasks such as reaching their arms, listening to music, or speaking. The most popular such method is known as Functional Magnetic Resonance Imaging or fMRI. Much of the data described in this chapter has been obtained using fMRI methods which look for brain 'activation'. Regions of 'activation' or higher metabolic activity are determined by the relative amounts of oxygen consumption in different parts of the brain (see Raichle & Mintun, 2006). Increasing consumption of oxygen is a marker for metabolic activation that results from the increasing demand from neurons that are firing. Activation of a brain region while performing a specific task (when compared to control) suggests that this region is important in completing the task. For example, fMRI can show the activation of the visual cortex (at the back of the brain) when people are being shown images or are being asked to use visual imagination which contributes to the argument that this region is important in image formation.

Advances in fMRI technology and understanding of brain dynamics have changed the way in which scientists study the brain. One such change relates to the emergence of neuronal networks that perform activities instead of singular brain areas. Scientists have found that networks of neurons spread around the cortex (the outer part of the brain) work together to perform common tasks such as speech production. When studied in the fMRI the regions involved appear to become active together and inactive together when the subject is resting. This co-regulation is known as network coherence or functional connectivity which can describe how closely linked different regions of a network are (for a review see: Snyder & Raichle, 2012).

The Default Mode Network (DMN)

In 2001 it was accidentally discovered that there is a cortical network that becomes active during a relaxed resting state (Raichle et al., 2001). In most experiments using fMRI this was considered the 'control' condition because no task was being performed. However, the brain was behaving as though a specific task was being done. This network came to be known as the Default Mode Network (DMN) and is one of the most actively studied brain networks. Indeed, it is the discovery of the DMN that allows us to consider how the brain creates self-perception and thus allows us to consider the brain's role in the psychedelic state.

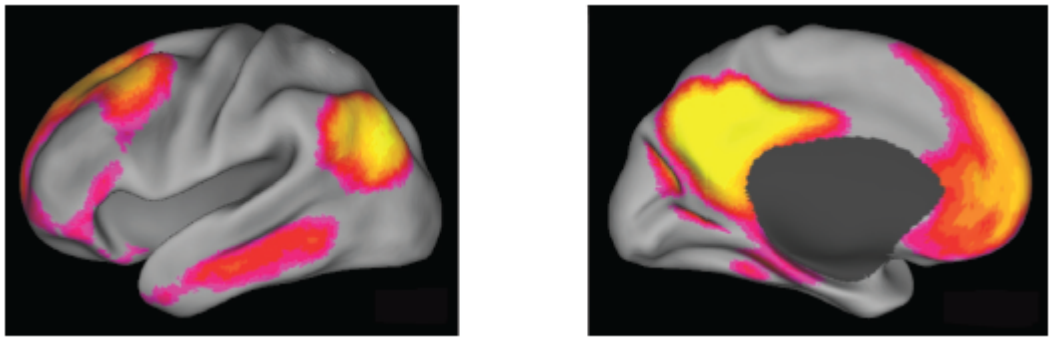


FIGURE 3: Regions of color represent the areas that make up the DMN

In the nearly 20 years since its discovery there have been hundreds of studies to elucidate the function of the DMN. In general this network is active when people are thinking about the past, imagining the future, letting the mind wander, and during self-reflection. A number of researchers have suggested that the DMN is the physical substrate of the ego, and the functions of each of the parts of the DMN support some of these ideas.

The DMN is divided into three regions. The first (1) is found at the front of the brain along the middle and toward the bottom is called the ventromedial prefrontal cortex (vmPFC). The next (2) is just above this region, also along the midline of the brain but closer to the forehead called the dorsal medial prefrontal cortex (dmPFC), and finally (3) the regions further to the back of the brain that includes the posterior cingulate cortex (PCC), lateral parietal cortex. Further detail can be found in Raichle et al., 2001.

These three regions have been implicated in different functions that combine to form the DMN (Raichle, 2015). Region 1 responds most to anxiety created by learning a new task, and its activity decreases as the task becomes easier. It seems to relate to emotional processing. Region 2 reacts to 'self-referential judgement' or making a judgement about an internal feeling (feeling pleasant or uncomfortable). Region 3 is most active in recollecting prior experiences, or drawing on memories. The three regions become active together with each of the 3 regions adjusting when a task is more demanding of them (for example, when being asked to recall a prior event region 3 may become more active).

The DMN appears to be the Brain Network that Constructs the Ego

If Raichle (2015) is correct that the DMN is a "self-centered predictive model of the world" which considers both the past and tries to imagine the self into the future, then we see that it closely maps over some of the main functions of what we consider the 'ego'. The DMN contains strong neuronal connections to a very wide range of brain regions, which is suggestive of the importance of this network. That self-reflection is the primary activating task of the DMN also points to the possibility that this network underlies self-perception and may be involved in pathologies with altered self-perception.

Posner and colleagues (2013) have shown that functional connectivity or network coherence of the DMN is increased in depressed patients and is suggestive of rumination. Furthermore, they found that when patients are stabilized with antidepressants the DMN behavior normalizes. Likewise there is growing evidence of DMN disorganization in people diagnosed with schizophrenia (Wang et al., 2015).

Psychedelics and the DMN

The upsurge in work studying the DMN has coincided with a loosening of regulations on studying LSD and psilocybin in human subjects. In the last several years Dr. David Nutt and Dr. Robin Carhart-Harris have been able to study subjects under the influence of LSD and psilocybin in an attempt to understand what is happening in the brain after a moderate dose of psilocybin. These studies have

implicated the DMN in the changes associated with peak psychedelic experiences and suggest a hypothesis of how changes in brain activity may underlie the subjective effects of these drugs.

In 2012 this group published a surprising first finding: when subjects were given psilocybin there was no increase in brain activity. On the contrary, the group found a decrease in brain activity specifically the PCC and mPFC both dorsal and ventral (both important parts of the DMN), and additional decreases in the thalamus (Carhart-Harris et al., 2012). There are two valuable clues in this finding: the first is that all three of these regions are major hubs of connectivity in the brain akin to Penn Station in New York – a place where lots of information is trafficked. Second, it is notable that the part of the DMN that was not affected by psilocybin is the lateral parietal cortex, a region very important for accessing memory. Notably people report increased access to memories during the psychedelic state and often remember their experiences in minute detail. Participants were also asked to rate the strength of their psychedelic experience and the strength of their subjective experience was strongly correlated with reductions in activity in the DMN regions. These results suggest that the primary impact of high-dose psilocybin is to reduce activity in much of the DMN and that this decrease may be responsible for the uniquely psychedelic experiences.

Similar reductions in activity of the DMN were seen under the influence of LSD (Carhart-Harris et al., 2016) and upon further analysis the researchers found that LSD dramatically reduced synchronization of the cortical neuronal networks, and that the greater the reduction in synchronization predicted stronger psychedelic effects. Notably, desynchronization was strongly correlated with feelings of ego-dissolution but not visual hallucinations.

Recognizing that the DMN regions that were de-activated after psilocybin and LSD are major hubs of connectivity, Petri et al. (2014) studied what happens to the functional connectivity between brain regions. As described earlier, the brain is organized into several important networks made up of diverse brain regions that act together to carry out a task, among them is the DMN. Scientists study these

networks by looking at 'functional connectivity' between different regions which show which regions act in synchrony becoming active or inactive at the same time. Petri and colleagues found that by shutting down the hubs of the DMN, psilocybin led to a remarkable increase in connections between disparate brain regions. The image below illustrates a large increase in connections being made between disparate brain regions (psilocybin condition is on the right). The size of the circles represents the strength of the connection between these regions. You can see that there are many more strong connections in the psilocybin condition which suggests a larger amount of integration among regions and fewer large networks dominating cortical brain activity[JL1].

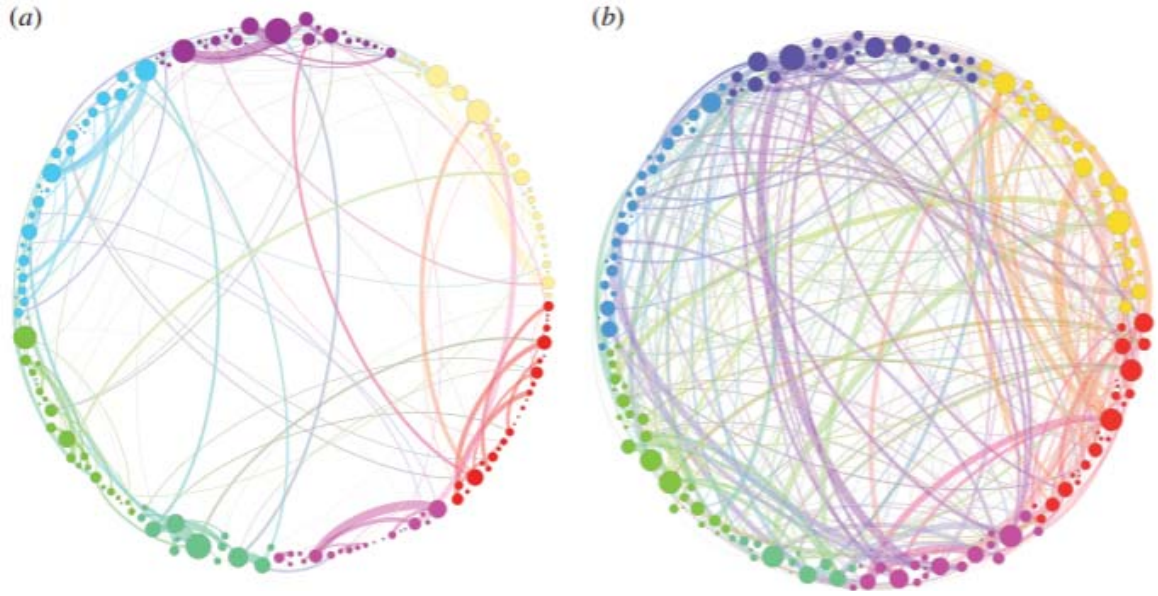


FIGURE 4: Comparison of neuronal connections during normal waking consciousness (left) and after psilocybin treatment (right). Circles represent brain regions and lines represent the connections. Circle size is representative of the strength of the connection.

The strong relationship between deactivation and desynchronization of the DMN with the subjective effects of ego dissolution (as measured through well-studied self-report questionnaires) makes a powerful case for the involvement of the DMN in peak psychedelic experiences. Indeed, it suggests that the mystical nature of peak experiences is a product of the physical brain as opposed to transpersonal forces. That these experiences are felt as transpersonal, as though connected through a 'life-force' to all other creatures across time, is certainly true and should not be undermined by these findings. I would

argue that these data suggest an incredibly compelling reason to believe that the human brain is constructed in such a way as to have access to these important and life-affirming experiences.

How Can We Understand the Value of DMN Deactivation and Increased Brain Connectivity?

Aldous Huxley famously described his first psychedelic experience in his essay "The Doors of Perception" (1954) in which he also propose a hypothesis about the actions of psychedelics. He wrote that the amount of information entering the brain through our senses was far too much for our conscious mind to comprehend, and this huge amount of incoming data would also trigger biographical and factual associations of memory which add to the volume of information. Huxley believed that this staggering amount of information would overwhelm the conscious mind. Instead the conscious mind acted as a "reducing valve" (Huxley, 1954, p.8) or filter to focus the mind on the most relevant information for survival. We have learned since then that the brain determines which information is relevant to the current situation and where to bring conscious attention based on past experience and physiological desires such as hunger, sex, and fear. However, under the influence of psychedelics these filtering systems break down allowing the conscious mind to access a huge amount of information. This added information likely contributes to the significant increase in new cortical connections seen in the Petri et al. (2014) figure above.

It is worth noting that the thalamus, which is also consistently deactivated under the influence of psychedelics, is the primary gateway for nearly all sensory information aside from smell (Herrero et al., 2002; McCormich and Bal, 1994). Deactivation of the thalamus likely results in the unbridled flow of sensory information to the cortex and thus likely contributes to the intense, confusing, and sometimes frightening experiences that people have while under the influence of psychedelics. Further evidence for the importance of the thalamus can be found in people with schizophrenia. It appears that during active hallucinations the thalamus becomes overactive, thus providing false sensory input to the cortex that mimic real sensory information (Behrendt and Young, 2004). The strong connection between the

thalamus and mPFC may explain some of the boundary confusion that exists for people with schizophrenia. When aberrant or false sensory information enters the mPFC (part of the DMN) patients experience these 'external' stimuli as part of their constructed self.

If we now consider the possible effects that result from the twin changes in the thalamus and DMN I believe we can begin to interpret the subjective effects that lead to ego-death. During this time unfiltered sensory input bypasses the thalamus and streams into the cortex (where consciousness is constructed). At the same moment the disintegration of the DMN results in the loss of ego boundaries. The rush of un-gated sensory and autobiographical information into consciousness are likely to increasing the intensity of the experience and may contribute to the feeling of being fully immersed, even engulfed by the moment. Furthermore, as the DMN begins to deactivate, two things happen: cortical regions begin to connect in new and unique patterns thus bridging ideas and perceptions that would otherwise remain separated, and self-other and conscious-unconscious boundaries dissolve. This new, boundary-less position means that feelings of the self are unbound, thus leading us to associate the self with any perceptions, memories, or ideas that pass through awareness. With the near-total dissolution of the DMN under high-dose psychedelics the entire content of the mind becomes part of the self-perception resulting in feelings that the self-expand as far as the mind. This transcendence of time/space is one of the four key components of a peak or mystical experience (Maclean et al., 2012).

Neuroscience has given theorists a wealth of ideas to help interpret the psychedelic experience. It is worth noting that even these more objective metrics such as neuronal activity require conceptual interpretation. Despite significant strides in developing coherent explanations for the effects of psychedelics our understanding of the biology of these substances is still woefully under-researched. In the next chapter I will step back and attempt to synthesize this neuroscientific perspective with the existential ideas presented earlier. In addition, I will discuss some of the far-reaching implications of these ideas on our view of health and pathology.

CHAPTER FIVE

Discussion

The use of psychedelics in ceremonial or therapeutic contexts has a long history in human cultures. Although not without risk, it is an old and powerful method of healing. The re-emergence of research on the topic has ignited popular discussion, but very limited consideration among clinicians. Several ongoing clinical trials are moving these drugs toward eventual approval, increasing the need for a thorough consideration among mental health clinicians. The goal of this thesis is to consider theoretical frameworks for understanding the psychedelic peak experience.

Both the existential and neuroscientific approaches hold value for interpreting and managing high-dose psychedelic experiences in the therapeutic context. Indeed, I see these perspectives as complementary even as they view the question from different levels of analysis. Existential perspectives may scaffold clinical interpretation of our client's experience and in turn give clients a language with which to understand the profound and otherworldly journey of psychedelics. In contrast, the neuroscientific perspective ignores the individual experience instead focusing on the statistical and biological similarities among people's experience. It may be that a more objective, medical frame will help draw people skeptical of the personal narratives that populate most theoretical orientation.

Nonetheless, there is still a lot that we don't know about the therapeutic potential of psychedelic experiences. There are still too few studies of psychedelic psychotherapy, and although most are well-designed, the small number of participants makes it hard to make more specific recommendations. Studies have not compared alternative preparation sessions or methods of post-treatment integration. There needs to be a greater understanding of how meaningful experiences are translated into new patterns of behavior that provide meaning to clients. Aside from the exclusion of people with psychotic illness, there have not been rigorous considerations of the value of psychedelic psychotherapy in diverse and persistent pathologies such as OCD or narcissistic and borderline personality disorders. When these

studies are completed they may help us better assess and understand the methods by which psychedelics can be healing and the limits of their utility.

High-dose psychedelic treatment requires a peculiar amount of focus and scaffolding: they are not passive pharmaceuticals that act independently of patient's mindset such as blood-pressure medication or even classic anti-depressant medications. On the contrary, psychedelics demand participation and can be seen as an adjunct to classic psychotherapeutic treatment. I have not discussed the clinical context of the psychedelic experience, yet the quality of the therapeutic relationship and both preparation and integration of sessions is paramount to successful treatment.

Theoretical Considerations and Conclusions

One of the complementary findings from therapeutic and brain scan studies is that diminution of the ego-related processes is one of the primary effects of psychedelics and that they may underlie the success of treatment. That the diminishment of self, either through confrontation with mortality or the experience of ego-death, is felt by many people to be a profound and enlightening experience suggests that it may be the very existence of the ego that causes suffering. This is supported by the observation that humans have found many ways to escape, forget, or expand the sense of self through alcohol, drugs, meditation, or the pursuit of extreme experiences. While self-awareness is an important evolutionary tool for communication and cooperation, the hyper-focus on oneself demanded by an individualist, consumerist culture may be the seed of suffering.

There is significant phenomenological and scientific evidence that ego-focused rumination contributes to depression and anxiety, and reducing self-awareness and thinking is experienced as relieving. As mentioned previously, depressed individuals often ruminate on their struggles which can act to reiterate and maintain a depressive mindset. This rumination, or repeated negative thinking about oneself, is correlated with increased activity in the DMN, a pattern that is reversed with successful antidepressant treatment (Hamilton et al., 2015). Conversely, a number of studies have suggested that

compassionate, altruistic behavior is strongly associated with health and happiness (reviewed in Post, 2005).

David Loy, a Zen Buddhist teacher and philosopher, has written about the Buddhist perspective on self. According to Loy, Buddhist doctrine sees the idea of the existence of any 'self' to be an illusion of language wherein self and object must be divided (Loy, 1996,p. xiii). As a result of this we live with an anxiety that we are indeed an illusion, what Loy calls a 'sense of lack' (Loy, 1996, p. xv). This feeling of lack is a root, or fundamental anxiety that drives our minds to seek satisfaction in our appetites. These ideas can be important when considering both the meaning, and methods of attaining satisfaction and happiness. I am pleased that psychologists have begun bridging these Buddhist concepts with the current psychological literature (Shiah, 2016). I hope that they may provide a foundation to the goals of psychotherapy.

Continuing, I propose that when people face the experience of dissolution during a peak psychedelic experience they confront this root anxiety of self/no-self. Having faced and surpassed the anxiety people feel an extreme sense of liberation and joy, as if seeing the world for the first time. The liberation of self, described as "oceanic boundlessness" is both a complete loss of self as subject while also seeing self in all things. The joy that comes from such a fundamental experience often changes peoples' understanding of themselves and the possibility of their lives. As Maclean and colleagues (2012) have found, not only do subjects often experience healing but those who experience a 'complete mystical experience' become more flexible and open to new experiences as though freed from the confines of rigid ego defenses.

It strikes me that people seek such experiences of self-loss in many ways. These are the obliteration of self when we see images of the earth from far distances such as the moon. It gives the visceral sense that we are small as to not exist at all. We are awed by the Grand Canyon, by enormous mountains, and brilliant sunsets in a similar fashion. We 'forget ourselves' through concentration in

music or other passion (“flow” experiences), and in inebriating drugs such as alcohol and heroin. In Buddhist meditative practice people experience no-self on the path of liberation. One recent example can be seen in the experience of Christopher Thomas Knight, known as the North Pond Hermit, a man who chose to live in the woods of Maine for 27 years without contact with other people. He lived alone in the pine woods by stealing food, clothing, supplies, and alcohol from nearby cabins (which terrorized local residents). Interviewed by a reporter, Mr. Knight, who was in prison at the time, tried to describe the result of his experience alone in the woods:

> I did examine myself," he said. "Solitude did increase my perception. But here’s the tricky thing—when I applied my increased perception to myself, I lost my identity. With no audience, no one to perform for, I was just there. There was no need to define myself; I became irrelevant. The moon was the minute hand, the seasons the hour hand. I didn’t even have a name. I never felt lonely. To put it romantically: I was completely free

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