

State University of New York College at Buffalo - Buffalo State College

## Digital Commons at Buffalo State

---

Creative Studies Graduate Student Master's  
Projects

International Center for Studies in Creativity

---

5-2022

### Exploring the Intersection Between Psychedelics and The 4 P's of Creativity

Laura M. Dawn  
dawnlm01@mail.buffalostate.edu

#### Advisor

Dr. Susan Keller-Mathers

---

#### Recommended Citation

Dawn, Laura M., "Exploring the Intersection Between Psychedelics and The 4 P's of Creativity" (2022).  
*Creative Studies Graduate Student Master's Projects*. 352.  
<https://digitalcommons.buffalostate.edu/creativeprojects/352>

Follow this and additional works at: <https://digitalcommons.buffalostate.edu/creativeprojects>



Part of the [Leadership Studies Commons](#)

Exploring the Intersection Between Psychedelics and The 4 P's of Creativity

By: Laura Dawn

An Abstract of a Project  
in  
Creativity and Change Leadership

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Master of Science

May 2022

Buffalo State  
State University of New York  
Department of Creativity and Change Leadership

## **Abstract of Project**

Psychedelics are extremely multifaceted and complex hallucinogenic compounds that induce an altered state of consciousness and can have a wide range of effects. The outcomes of one's psychedelic experience are largely dependent on what's known as "set and setting." The purpose of this project is to make an argument that the lens through which we look at and explore psychedelics matters. Currently the primary lens through which Western culture is exploring psychedelics is through the lens of reducing mental illness. When we look at the existing scientific research that focuses on psychedelics as a treatment for mental illness, and we re-read this literature through the lens of deeply understanding creativity research, one can make a strong argument that the same reasons that psychedelics help to treat depression or addiction, for example, are the same underlying mechanisms for which psychedelics can help to foster greater creative thinking.

This project makes a case that despite the lack of scientific research explicitly exploring the connection between psychedelics and creativity, we can start to highlight and connect hidden dots that make an argument that psychedelics can indeed enhance various aspects of creativity. This project specifically explores how psychedelics relate to the 4 P's of Creativity. Through this project and the review of the existing literature, I came to understand that the very core overlap between psychedelics and creativity is a mode of cognition called unconstrained cognition, strengthening my understanding of how psychedelic experiences can support the multifaceted nature of creativity.

I believe this to be the next frontier in psychedelic research because it's essentially the second half of the same equation of mental health. I consider the curriculum I am developing to be like a helpful roadmap for both psychedelic preparation and integration, specifically for leaders who want to not only develop their leadership skills but who also want to develop their capacities to think more creatively.

*Key words:* creativity, psychedelic, leadership, leadership development, creative thinking, the 4 P's of creativity



---

Laura Dawn

May 22, 2022

Buffalo State  
State University of New York  
Department of Creativity and Change Leadership

Exploring the Intersection Between Psychedelics and The 4 P's of Creativity

A Project in  
Creativity and Change Leadership

by

Laura Dawn

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Master of Science  
May 2022

Dates of Approval:

May 22nd 2022

---



---

Dr. Susan Keller-Mathers  
Associate Professor

May 22nd 2022

---



---

Laura Dawn  
Student

## Copyright Notice

Copyright © 2022 by Laura Dawn. All rights reserved. The works of authorship contained in this paper, including but not limited to all text and images, are owned, except as otherwise expressly stated, by Laura Dawn and may not be copied, reproduced, transmitted, displayed, distributed, rented, sublicensed, altered, stored for subsequent use, or otherwise used in whole or in part in any manner without the prior written consent of Laura Dawn except to the extent that such use constitutes "fair use" under the Copyright Act of 1976 (17 U.S.C. §107), with an attached copy of this page containing the Copyright Notice. The principle of fair use specifies that a teacher may fairly copy 10 percent of a prose work, up to 1,000 words.

## Acknowledgements

First and foremost, I would like to thank both of my parents who instilled beliefs within my consciousness that shaped the woman I am today. When I was a child, I remember my father telling me “whatever you see in your mind, you can create in reality.” He taught and modeled what it means to be a visionary, and for that, I will always be grateful. My mother lovingly encouraged me to trust my intuition. She used to say to me “I trust your judgment and the decisions you make for your life.” As a result, my life path has been quite the unconventional one. After experiencing my first high dose psilocybin experience when I was in my early teenage years, I can add sacred plant medicines as profound teachers and allies that have also raised me, largely influencing and shaping who I am today. I have enormous gratitude for the inherent wisdom of these profound teachers who have taught me that the power to create starts first and foremost in my mind. To say that I owe my life to these medicines is an understatement.

Thank you to my professors and mentors at Buffalo State College. Special thanks to Dr. Susan Keller-Mathers and Dr. Puccio who have encouraged me to follow this thread exploring the intersection between psychedelics and creativity that truly ignites passion within my heart. Dr. Susan Keller-Mathers has been patient and supportive, helping to guide and encourage me through this home stretch of my graduate degree. With sincerest gratitude, thank you!

## Table of Contents

SECTION ONE: BACKGROUND TO THE PROJECT	1
Purpose and Description of Project	1
Broader Context Inspiring This Project	1
My Personal Journey With Psychedelics & Creativity	5
Rationale for Selection	9
SECTION TWO: PERTINENT LITERATURE AND RESOURCES	17
A Case for Creativity In a Volatile World	17
Leadership Literature	18
Psychedelic Literature	19
Creativity Literature	21
SECTION THREE: PROCESS PLAN	23
Plan to Achieve My Goals and Outcomes	23
Project Timeline	24
Evaluation Plan	24
SECTION FOUR: PROJECT OUTCOMES	26
Framework #1: Applying the Systems Change Model of Creativity to Set & Setting	26
Framework #2: Applying the New Systems Change Model to Develop the “5 P’s” of Creativity.	27
SECTION FIVE OVERVIEW OF PROJECT: PROCESS AND KEY LEARNINGS	28
Dividing the Creative Person into Two Separate Categories: Cognitive & Affect, Fixed Vs. Malleable	29
Creative Practices	32
Exploring the Overlap between Visionary Thinking & Psychedelics	35
Creative Cognition Underlying Creative Thinking & The Creative Process	38
Creative “Product” or Outcomes	42
Creative Place	43
Key Learnings	45



What I See Myself Doing Next	46
CONCLUSION	47
APPENDIX A	55
Creative Change Model: A Systems Approach towards A Systems Change Model for Psychedelic Leadership	55
Figure 1. Creative Change Model: A Systems Approach	55
Figure 2: Set & Setting	55
APPENDIX A (CONTINUED)	56
Figure 3: Immediate Vs. Broader Context of Both Set and Setting	56
Figure 4: The Systems Change Model for Psychedelic Creative Leadership	56
APPENDIX B	57
Table 1: A comprehensive list of creativity skills, summarized from <i>The Search for Satori     and Creativity</i> (Torrance, 1979)	57
Table 2: Image of Creative Thinking Skills developed by Burnett, Figliotti and Saltzberg, 2020, from Downloaded PDF from <a href="http://www.uploads/2020/06/CreativeThinkingSkillsfinal.pdf">www.uploads/     2020/06/CreativeThinkingSkillsfinal.pdf</a>	59
Table 3: An abbreviated summary of Amabile’s creative thinking styles drawn from <i>Growing Up Creative: Nurturing a Lifetime of Creativity</i> (Amabile, 1989).	60
Table 4: A list of supporting skills for divergent thinking from: <i>Creative Leadership</i> (Puccio et al., 2011, pp. 107-108).	60
APPENDIX C	61
Psychedelics & Personality Trait Openness to Experience Sequence of Slide Presentation	61
APPENDIX D	62
The Connection Between Psychedelics, Psychological Flexibility, Mental Illness & Creativity.	62

## **SECTION ONE: BACKGROUND TO THE PROJECT**

### **Purpose and Description of Project**

#### **Broader Context Inspiring This Project**

We are living through a time of unprecedented, exponential change, and these changes will continue to drastically impact and shift the way we both live and work. In the late 90's, experts across a variety of fields referred to our time as a "VUCA" world: a time marked by extreme volatility, uncertainty, complexity and ambiguity – needless to say this term "VUCA" has never been more appropriate.

With global pandemics, disrupted supply chains, the acceleration of AI, Facebook's introduction of the "metaverse", the rapid mainstream adoption of cryptocurrency, not to mention shifts in global climate – to name just a few of the many significant forces shaping the future of our lives – today's business leaders across all domains face an extremely uncertain road ahead.

Consider this key data:

- AI is expected to replace 50% of all jobs by 2030 (Yan, 2017).
- Automation could destroy as many as 73 million U.S. jobs by 2030 (Davison, 2017).
- The amount of different jobs you have throughout your career is expected to increase 10 fold (Whiting, 2020).
- According to the World Economic Forum: "In many industries and countries, the most in-demand occupations or specialties did not exist 10 or even five years ago, and the pace of change is set to accelerate" (World Economic Forum, 2022).

- It's very likely that most people in the job market need to start preparing now for a job that doesn't exist yet.

This is unfolding within the larger context that the foundational systems and societal structures we have collectively built our lives around were designed for the industrial era – an era that we are rapidly leaving behind. And now, as we poignantly stand on the precipice of what scientists call the sixth mass extinction (Barnosky, et al. 2011), many of us intuitively know that we – as in humanity – can't keep going the way we've been going.

But crisis can be the catalyst for transformation and challenges can and oftentimes do indeed open up the window for new opportunities and solutions to emerge. As we find ourselves facing this gap between two worlds, the old rules of leadership simply no longer apply and there is a call for a new kind of leadership to emerge. New solutions – creative solutions – are now being called forth. As Chase Jarvis, founder of Creative Live so aptly put it: “*Our species and our planet face a new set of challenges that only creativity will solve*” (Chase, 2019).

At the end of January 2020, before we knew the devastating impact the COVID-19 pandemic would have in the global economy, leaders from all over the world gathered in Davos for the 50th World Economic Forum, providing a platform for the world's leading companies to come together to discuss obstacles and solutions to shaping a better future.

New York Times bestselling author of *Sapiens*, *Homo Deus* and *21 Lessons for the 21st Century*, Yuval Noah Harari gave a sobering, chilling and yet oddly inspiring keynote speech, speaking to what calls the emerging creation of a global “useless” class. As Harari said in his speech: “Automation will soon eliminate millions upon millions of jobs, and while new jobs will certainly be created, it is unclear whether people will be able to learn the necessary new skills

fast enough” (Harari, 2020). Harari expressed that our ongoing capacity to continuously be able to reinvent ourselves is going to be our single greatest asset and expressed the urgent need to cultivate our abilities to think more creatively. It’s worth noting what lies under our capacity to continuously reinvent ourselves, which essentially points towards our core abilities to quickly respond to change in VUCA world. This highlights the need for training new skill sets and mindsets that foster and support adaptability, flexibility, a higher tolerance for ambiguity and complexity and a willingness to stay open to novelty and new, original ideas. These skill sets and mindsets rest at the core of what creative leadership is all about.

In light of the key data shared, it’s no surprise that the cultural narrative around creativity is drastically shifting. According to the World Economic Forum, creativity has been identified as one of the top 10 skill sets and core competencies to cultivate for business leaders in the twenty-first century (Whiting, 2020).

In an IBM study that surveyed more than 1,500 CEO's from 60 countries and 33 industries, less than half of CEOs feel prepared to meet the demands of a VUCA world (IBM, 2010).

The study concluded that creativity is now the most important leadership quality for success in business. The study acknowledged the importance of recognizing creativity as a skillset that can be taught and emphasized training people in that skillset.

Considering that we face unprecedented times of rapid change, creativity – including creative thinking skills and creative problem solving – are no longer a “nice to have” but a “must have” that will enable us to stay adaptive and remain flexible, and resilient in the face of our complex and fast-changing world. Cultivating a creative mindset will provide leaders with the

core competencies required to navigate unexpected challenges and enable us to discover pathways towards new opportunities, helping us find new, creative solutions to the complex problems we collectively face.

But what we are now witnessing is what Adobe calls a “global creativity gap.” Most people in the workforce were educated within the “industrial model for education” that didn’t prioritize creativity, let alone creative problem solving or creative thinking skills. Sir Ken Robinson is one of the world’s leading advocates for the transformation and reformation of our schooling system. In his riveting TED talk “Do Schools Kill Creativity?” – the most widely viewed TED talk of all time, Sir Ken Robinson exclaimed: “We are educating people *out* of their creative capacities” (Robinson, 2006).

This lack of creativity training in our formative years is being reflected in today’s job market. An Adobe study highlighted a growing workplace creativity gap, where 75% of respondents said they are under growing pressure to be productive rather than creative, despite the fact that they are increasingly expected to think creatively on the job (Adobe, 2012).

As we leave behind the industrial era that place productivity as the primary metric for success, many refer to our current emergent economy as the new “creative economy” (Howkins, 2013). As such, we are no longer living in the era of skillsets (that the industrial era encouraged us to prioritize) we have officially entered the era of mindsets. But considering how extractive, late-stage capitalism has influenced our disconnection from nature, we need to not only learn the creative mindsets and innovating thinking skills that enable us to be adaptive, flexible and resilient in the face of change, we also need to align mind with heart. We need to leverage our imagination and align creative solutions with deeper values that help bring us back into

harmonious alignment with nature and with each other. This starts first and foremost within ourselves.

As the saying goes, drastic times call for drastic measures – or at the very least, unconventional solutions. It's worth exploring new tools that hold promise in fostering mindsets that not only allow us to think outside the box and expand the boundaries of what we believe is possible but align our inner visions within a core set of heart-centered values. This is precisely what I believe psychedelics have the capacity to help us achieve.

### **My Personal Journey With Psychedelics & Creativity**

Prior to the COVID 19 pandemic, I had been facilitating transformational retreats for over ten years, and I have been deeply engaged in exploring psychedelics and working with sacred plant medicines for over twenty years. Alongside my exploration with hallucinogens, I have also been an entrepreneur my entire life. I have walked a parallel path between exploring altered states of consciousness, implementing and weaving what I experienced in these “visionary states” into the fabric of my life as a visionary entrepreneur.

Right before the pandemic hit, I had just led the most successful retreat of my career in Costa Rica with 41 participants, over the course of eleven days. The retreat included three ayahuasca ceremonies and one ceremony with San Pedro cactus. At this retreat, I taught an extensive framework through curriculum that I developed through my personal work with psychedelics that focused on how we can tap into visionary states and leverage the unique windows of heightened plasticity that psychedelic medicines offer us to re-write limiting beliefs and shape a new reality for ourselves to inspire greater change in both our personal and professional lives, and as a consequence, inspiring positive change in those around us.

After the retreat was over, the pandemic hit. Because I already deeply admired and respected Yuval Noah Harari as one of the world's most influential thought leaders, I started seeking out his perspective on the future of our economy in a world post-pandemic. This is when his words about the importance of creativity finally struck me. From that moment, I started seeing poignant statements about the importance of cultivating our creative thinking skills everywhere I looked, and was completely awe struck by the fact that the World Economic Forum was calling creativity the top ten skillsets we would be wise to cultivate and foster for the twenty first century.

It dawned on me that despite everything I've created in my life as an entrepreneur, I never actually considered myself to be a "creative" person because I didn't draw and wasn't an "artist". As a result of being struck by these statements about creativity, I couldn't help but question what creative thinking actually is, what defines it, and more importantly: did I have it? And how do I cultivate more of it?

At that time, I was already very well versed in the current psychedelic literature. But what did the psychedelic research have to say about psychedelics and creativity? Could psychedelics help foster greater creative thinking skills?

I came across a paper written by psychedelic neuroscientist Manesh Girn, co-authored by Dr. Robin Carhart-Harris called "*Updating the dynamic framework of thought: Creativity and psychedelics*" (Girn, 2020). This paper offered a compelling argument connecting the dots between creative cognition and the psychedelic state. It was this paper that finally inspired me to go back to school to pursue a Master's in Science at SUNY in Creativity Studies & Change Leadership.

As I've progressed through graduate school over the past two and a half years, deepening my understanding in creativity research, I've consistently been struck by the hidden parallels between psychedelics and creativity, inspiring me to look at the existing psychedelic literature through a new lens – the lens of creativity research. My primary aim through this project is to further develop this understanding by continuing to build a framework that demonstrates how psychedelics can support each of the 4 P's of Creativity initially developed by Mel Rhodes in 1961 (Rhodes, 1961). To help develop our collective understanding of something as complex as creativity, Mel Rhodes divided up the creative landscape into 4 core “categories” primarily: the creative person, the creative process, the creative product and the creative press, or environment.

The primary aim of this project is to turn this framework into curriculum that combines psychedelic experiences with leadership development training, which includes and incorporates creativity training as a core and essential component of leadership development.

There are many parallels between psychedelics and leadership theory and creativity. At its essence, leadership efforts are often the catalyst for change. In *Creative Leadership: Skills That Drive Change*, authors Puccio, Mance and Murdock write:

“A leader often acts as a catalyst for change, while creative thinking is a process that leads to change. Further, we have found that the deliberate use of creative thinking provides a set of principles and procedures that enhances a leader's ability to both foster change and respond to it. In short, the ability to successfully manage the creative process must be one of the core competencies of leadership, especially when leaders face increasingly novel challenges that require new directions and solutions to be adopted.” (Puccio, et al., 2011)



This narrative around leadership and creativity as catalysts for change perfectly parallels the core essence of what psychedelics are: pattern disruptors and catalysts for change. According to Dr. Robin Carhart-Harris, a pioneer in the field of psychedelic neuroscience, psychedelics have an overall effect of enhancing plasticity, and describes psychedelics as catalysts for change in the brain (Pollan, 2018). Not only is this exactly what we need right now, but we would be wise to explore how we might mindfully engage with psychedelic medicines to catalyze the kind of change that leads to greater, widespread positive change for our families, communities and culture at large.

That's why I believe the future of leadership is "*psychedelic*". I define psychedelic leadership as the combination of visionary, creative, compassionate, transformational, inspired, resonant and mindful leadership. There are existing theories and bodies of research pointing to the characteristics and benefits of developing each of these styles of leadership. From my personal and professional experience, one could make a very strong case that psychedelics can directly support the training of each of these valuable leadership styles, but it requires supportive curriculum.

On the broadest level, I am in the process of creating a year-long training program called "psychedelic-oriented leadership development", creating curriculum to train leaders across many fields in developing the necessary skillsets, mindsets and what I call "heartsets" for navigating these times of change with more flexibility, adaptability, resilience, and creativity, that leads to a deeper sense of meaning and purpose.

The purpose of this project is to build out the curriculum for 3-4 specific modules focusing on how psychedelics relate to the 4 P's of Creativity and will highlight the current

research that makes a strong argument for how psychedelics can enhance creative thinking. I will then be able to use those core content for upcoming keynotes and online program curriculum.

The broadest vision that brings the culmination of this project in alignment with my personal goals is to establish myself as one of the world's leading experts at the forefront of a newly defined niche that explores the intersection between psychedelics, creativity training and leadership development. With over two decades of personal experience exploring altered states of consciousness, I am incredibly passionate about creating leadership development curriculum within the context of working with psychedelics and sacred plant medicines. As a creative visionary leader, I thrive on being at the forefront of entirely new domains and disciplines.

### **Rationale for Selection**

Psychedelic medicines are rapidly entering the mainstream with millions of people now seeking out and exploring psychedelic experiences for their first time. This enormous spike of interest in psychedelics in recent years has been spurred by the positive media attention these mind-altering substances have been receiving – a drastic shift in tone since the Nixon era “war on drugs” spread of false information and psychedelic propaganda. This more recent positive media attention is due to the wave of psychedelic research that has emerged since the ban on psychedelic research was lifted only a few short decades ago. Current psychedelic research is demonstrating that these potent substances have a wide range of therapeutic effects, and are efficacious in the treatment of depression, anxiety, PTSD, and addiction. Highlighting this research in his book *How to Change Your Mind: What the New Science of Psychedelics Teaches Us About Consciousness, Dying, Addiction, Depression, and Transcendence* (Pollan, 2019),

Michael Pollan played an influential role in shifting the cultural narrative around psychedelics, ushering them into a more positive light.

It's worth noting that the primary lens through which the majority of people in Western culture are discussing and exploring the potential use of psychedelics is through the lens of treating mental illness. The research is primarily focused on the therapeutic potential for treating depression, anxiety, PTSD and addiction.

Considering that we are witnessing the worst mental health crisis in human history, it's understandable as to why a large portion of psychedelic research has been dedicated to exploring psychedelics as a potential treatment for mental illnesses. This focus also makes for a logical approach towards FDA approval and the path towards the legalization of psychedelics. Many studies have now conclusively pointed towards psychedelics as an effective treatment modality for the mental health conditions plaguing our time.

But it's important to understand that the perceptual lens through which we explore, study and engage with psychedelics has large and far-reaching implications for those working with psychedelics, as well as those supporting or guiding other people through psychedelic journeys. One implication is that it can drastically influence supportive frameworks and modalities within the context of preparation and integration, discussed below.

When we look at the existing scientific research that focuses on psychedelics as a treatment for mental illness, and we re-read this literature through the lens of deeply understanding creativity research, one can make a strong argument that some of the same reasons that psychedelics help to treat depression or addiction, for example, are the same reasons that psychedelics can foster greater creative thinking. That being said, very few people are exploring

these connections, and I believe this to be the next frontier in psychedelic research because it's essentially the second half of the same equation of mental health.

The analogy I like to use is that suffering from depression or addiction is like being stuck in a small dark room where you find yourself going around and around the same repetitive and ruminative mental loops. As someone who's personally struggled with addiction and depression, I'm intimately familiar with the darkness of that claustrophobic room. When psychedelics helped usher me through that healing portal, it was like stepping out of the confinement (of the mind) and stepping into the vastness of a beautiful world, opening my eyes to possibility for the first time where I was finally able to ask myself: now what? Now what else is possible to create with my life?

And now, as millions upon millions of people seek out psychedelic experiences to overcome their own mental suffering and afflictions I believe that many more people will be asking themselves that same question that I did.

If we look at mental health on a spectrum that ranges from mental pathology to mental wellbeing, we could make a case that the same reasons that psychedelics help reduce and treat mental illness are the same reasons they help us leverage our capacity to think more creatively. When stuck in the "hamster wheel" of depressive rumination, it requires psychological flexibility to step off the wheel and choose a new thought. In its essence, this is the core of what creative thinking is all about. A defining feature of creativity is flexibility of thought, the ability to create and use new mental categories and concepts to reorganize our experiences (Nijstad et al. 2010). Flexibility in creativity has been related to originality of ideas and the ability to break apart from mental fixations (Smith, 2012). In his book "Wired to Create, Scott Barry Kaufman writes:

“research shows that psychological flexibility is associated with high levels of idea generation, engagement with everyday creative activities, and publicly recognized creative achievement” (Kaufman, 2015).

When we look Arthur Kostler’s clever definition of creativity, who said: “creativity is the defeat of habit by originality” (Dubitzky et al. 2012) – couldn’t we say the exact same thing about the healing of depression or addiction? The healing of depression is also the defeat of habit by originality.

Even though psychedelic research hasn’t directly be conducted on this link between psychedelics, psychological flexibility and creativity, we can look at the existing literature through a new perceptual lens and still make a strong case by simply connecting the dots.

It’s also important to understand that psychedelic medicines are incredibly versatile and powerful tools and we are only just beginning to scratch the surface of what we understand about how they affect consciousness and how we can leverage this understanding for other possible uses. Despite the transformative potential psychedelic experiences can offer us, psychedelics are not cure-all solutions. As mentioned, they are pattern disruptors and can help catalyze change. I like to say that these medicines can illuminate the path before our feet but we need to show up to walk the path, one step in front of the other, for the rest of our lives.

As mentioned, heightened plasticity is a core feature of psychedelic experiences. Dr. Carhart-Harris describes “plasticity as essentially the capacity for change” (Kočárová et al. 2021) or the ability to be molded. Part of the reason that psychedelic-assisted therapy is effective is because it leverages these optimal windows of cognitive and psychological flexibility where the mind is little more malleable in the days following a psychedelic experience and combines it

with therapy (one of many therapeutic modalities) to further support and catalyze intentional change.

From my perspective, rather than asking: how can psychedelics help to reduce mental illness? We might consider asking: how can psychedelics support mental wellbeing? By reframing our starting point, we may arrive at very different approaches to working with these substances and therefore arrive at very different outcomes – one that may improve the symptoms of depression versus another outcome that specifically trains for creative problem solving and values-driven leadership. If we take it one step further and highlight creative expression, creative problem solving or creative thinking as primary functions of optimal mental health and wellbeing, we may further refine our approach and thus arrive at new processes and outcomes.

The interesting point to illuminate about this dialogue is that it is generally culturally accepted within the psychedelic industry that psychedelics can enhance creativity, primarily due to the vast number of anecdotal reports. Despite these anecdotal reports, scientific evidence is lacking (Mason, 2021). Very few psychedelic studies have been published specifically exploring the impact that psychedelic experiences can have on human creativity, and so far, there have been mixed results.

An association of psychedelics and creativity has been noted in a broad range of nonscientific publications (Baggott, 2015). There have been numerous well documented “success stories” that have contributed to this cultural narrative accepting psychedelics as a catalyst for creativity. Steve Jobs, founder of Apple and inventor of the iPhone said: “Taking LSD was a profound experience, one of the most important in my life” (Jobs, 2015). Kary Mullis, the late American Biochemist won the Nobel Prize in 1993 for developing a technique called polymerase

chain reaction, or PCR, that allowed scientists to create millions of copies of a single DNA molecule. In an interview with BBC, Mullis expressed “I seriously doubt that I would have invented PCR if I hadn’t taken LSD” (Waldman, 2018). Architect Kiyomi Izumi used LSD for inspiration when designing a hospital in Saskatchewan (Edginton, 2010). These anecdotes suggest that psychedelics may facilitate creativity (Sessa, 2008; Dobkin de Rios and Janiger, 2003).

In addition, countless artists, musicians, poets and writers have openly claimed psychedelics as leverage towards unleashing their inherent creative capacities. All that being said, the dominant narrative for psychedelics remains focused on the treatment of mental illness rather than working with them as tools for enhancing creativity.

Psychedelics are not only effective tools for meaning making, helping us to reorient our lives around what we care about, but they are also tools for helping us to shift our perspective, think outside the box and think more creatively. As Dennis McKenna, world’s leading ethnopharmacologist said in our conversation on The Psychedelic Leadership Podcast: “Psychedelics are tools for learning – tools for helping us learn how to think more creatively. That’s at the core of it” (McKenna, 2022). In addition, psychedelics lend themselves to the development of emotional intelligence (EQ) and self awareness. They enhance empathy, pro-social behavior and facilitate a core shift in values. They are powerful tools to align a new way of thinking with a deeper sense of heart-centered alignment that we so desperately need the leaders of our time to embody. But I believe these particular outcomes of the psychedelic experience can be further aimed for and enhanced if people are also learning about these potential aspects of psychedelic medicines within the context of supportive curriculum, particularly through

psychedelic preparation and integration. As we know, what we pay more attention to grows in our field of awareness.

It is becoming more commonly known that the context for which we work with psychedelics, also referred to as “set and setting”, plays a large and influential role in the outcomes of that experience. Set and setting are recognized as two of the most crucial factors that shape and determine both the immediate outcomes of ones psychedelic experience, as well as the long-lasting therapeutic benefits one might receive from any given journey. Set refers to “mindset” and “setting” refers to the physical environment we journey within. Although “set” refers to “mindset” it encompasses the totality of who we are as individuals and all that we are made of: our personalities, our biases, beliefs, and attitudes, our knowledge base and intellect, our expectations and assumptions, our personal internal narratives, our perceptual view of reality, as well as the intentions and the expectations we might approach a psychedelic experience with. In a recent report titled “Psychedelics and the Essential Importance of Context” published in the Journal of Psychopharmacology, Dr. Carhart-Harris proposes that the pro-plasticity effects of serotonin and the agonism of the 5-HT<sub>2A</sub> receptor in particular, “renders the psychedelic experience exceptionally sensitive to context.” He goes on to say: “Insufficient appreciation of this principle may lead to risky and potentially harmful applications of psychedelics – which could jeopardize the healthy progress of psychedelic research – as well as the mental health of anyone who misuses these drugs (Carhart-Harris and Nutt, 2017).

Because psychedelics have been reported to increase suggestibility (Middlefell, 1967; Sjoberg and Hollister, 1965), it seems reasonable to hypothesize that the expectation of improved creativity in participants might help to increase performance (Harman et al., 1966; Barron and



Harrington,1981). If we “prime” the mind towards healing addiction this may look different than priming the mind for creative thinking.

I consider the curriculum I am developing to be like a helpful roadmap for both psychedelic preparation and integration, specifically for leaders who want to not only develop their leadership skills but who also want to develop their capacities to think more creatively. Integration essentially points to how we learn to integrate the wisdom we receive from these powerful experiences into the fabric of our everyday lives. I believe that working with psychedelics within the context of leadership development can contribute to supporting and training leaders for a new era, helping to catalyze intentional values-centered change and a more authentic expression of who we are, and towards more creative solutions to the complex challenges we face.

From my perspective, it’s no coincidence that as we face these times of radical change and upheaval, we are simultaneously witnessing a psychedelic renaissance as these pattern disruptors rapidly enter the mainstream. My intention is to help teach leaders and influencers how to work with these powerful substances in ways that fosters and enhances creative thinking that’s aligned with pro-social behavior and values driven action so leaders can uncover solutions to the complex challenges we collectively face.

## SECTION TWO: PERTINENT LITERATURE AND RESOURCES

This project will draw upon research conducted across the fields of psychedelics, leadership and creativity including the seminal work of Daniel Goldman, Richard Boyatzis on emotional intelligence. I will look to the work of Brené Brown for leadership training, Dr. Robin Carhart-Harris for psychedelic research, and the wisdom teachings of the Buddha primarily taught by Pema Chödrön. I will also draw upon research in the field of creativity.

### A Case for Creativity In a Volatile World

These references help to paint a picture of the volatile world we are living in and help to make a strong case for why creativity matters in a VUCA world.

Davidson, P. (2017, December 1) *Automation could kill 73 million US jobs by 2030*. Transport Topics. <https://www.ttnews.com/articles/automation-could-kill-73-million-us-jobs-2030>

Yan, S. (2017, April 28) *Artificial intelligence will replace half of all jobs in the next decade, says widely followed technologist*. CNBC. <https://www.cnbc.com/2017/04/27/kai-fu-lee-robots-will-replace-half-of-all-jobs.html>

Whiting, K. (2020, October 21) *These are the top 10 job skills of tomorrow – and how long it takes to learn them*. World Economic Forum. <https://www.weforum.org/agenda/2020/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them>

Harari, N.Y (2020, January 24) *Read Yuval Harari's blistering warning to Davos in full*. World Economic Forum. <https://www.weforum.org/agenda/2020/01/yuval-hararis-warning-davos-speech-future-predictions/>

*Chapter 1: The future of jobs and skills*. World Economic Forum. <https://reports.weforum.org/future-of-jobs-2016/chapter-1-the-future-of-jobs-and-skills>

Barnosky, A., Matzke, N., Tomiya, S. *et al.* (2011) Has the Earth's sixth mass extinction already arrived? *Nature* 471, 51–57

Bendzsa, C. (2010, May 18) *IBM 2010 global CEO study: creativity selected as most crucial factor for future success*. IBM. <https://www.ibm.com/news/ca/en/2010/05/20/v384864m81427w34.html>

Robinson, K. (2006, February) *Do schools kill creativity?* TED [https://www.ted.com/talks/sir\\_ken\\_robinson\\_do\\_schools\\_kill\\_creativity](https://www.ted.com/talks/sir_ken_robinson_do_schools_kill_creativity)

Adobe (2012, April 23) *Study reveals global creativity gap*. Adobe <https://news.adobe.com/news/news-details/2012/Study-Reveals-Global-Creativity-Gap/default.aspx>

Howkins, J. (2013) *The creative economy*. Penguin Books.

### **Leadership Literature**

There is a vast body of literature that offers valuable insight into leadership development. This year long program weaves together insights from pioneers in the field including Goldman, Boyatzis, McKee, and Brown.

Goleman, D., Boyatzis, R., & McKee, A. (2013). *Primal leadership*. Harvard Business Review Press.

Goleman, D. (2020). *Emotional intelligence*. Bantam Books.

Goleman, D., Boyatzis, R. E., Davidson, R. J., Druskat, U. V., & Kohlrieser, G. (2017). *Building blocks of emotional intelligence: The 12 crucial competencies*. More Than Sound, LLC.

Bradberry, T., & Greaves, J. (2009). *Emotional intelligence 2.0*. TalentSmart.

Goleman, D., & Boyatzis, R. (2017). Emotional intelligence has 12 elements. Which do you need to work on. *Harvard Business Review*, 84(2), 1-5.

Goleman, D. (1996). Emotional intelligence. Why it can matter more than IQ. *Learning*, 24(6), 49-50.

Abdollahi, A., Abu Talib, M., & Motalebi, S. A. (2015). Emotional intelligence and depressive symptoms as predictors of happiness among adolescents. *Iranian Journal of Psychiatry and Behavioral Sciences*, 9(4), e2268. <https://doi.org/10.17795/ijpbs-2268>

Puccio, G. J., Mance, M., & Murdock, M. C. (2011). *Creative leadership: Skills that drive change*. SAGE.

Kaufman, S. B. (2021). *Transcend: The new science of self-actualization*. TarcherPerigee.

Hanson, R. (2011). *Buddha's Brain: The practical neuroscience of happiness, love, and wisdom*. Readhowyouwant.com Ltd.

Lesser, M. (2019). *Seven practices of a mindful leader: Lessons from google and a zen monastery kitchen*. New World Library.

Brown, B. (2019). *Dare to lead: Brave work, tough conversations, whole hearts*. Random House Large Print Publishing.

Chödrön Pema. (2019). *Living beautifully with uncertainty and change*. Shambhala.

### **Psychedelic Literature**

This project will draw upon the vast amount of psychedelic research including the existing psychedelic research that focuses on psychedelics as a therapeutic modality for healing depression as well as the limited research that has been done exploring psychedelics and creativity.

Pollan, M. (2018). *How to change your mind: What the new science of psychedelics teaches us about consciousness, dying, addiction, depression, and transcendence*. Penguin Press.

Carhart-Harris, R. L. (2018). The entropic brain-revisited. *Neuropharmacology*, 142, 167-178.

Carhart-Harris, R. L., Leech, R., Hellyer, P. J., Shanahan, M., Feilding, A., Tagliazucchi, E., Chialvo, D. R., & Nutt, D. (2014). The entropic brain: a theory of conscious states informed by neuroimaging research with psychedelic drugs. *Frontiers in Human Neuroscience*, 8, 20.

Blatchford, E., Bright, S., & Engel, L. (2021). Tripping over the other: Could psychedelics increase empathy? *Journal of Psychedelic Studies*, 4(3), 163-170.

Holze, F., Avedisian, I., Varghese, N., Eckert, A., & Liechti, M. E. (2021). Role of the 5-HT<sub>2A</sub> receptor in acute effects of LSD on empathy and circulating oxytocin. *Frontiers in Pharmacology*, 12, 1790.

Preller, K. H., Herdener, M., Pokorny, T., Planzer, A., Kraehenmann, R., Stämpfli, P., & Vollenweider, F. X. (2017). The fabric of meaning and subjective effects in LSD-induced states depend on serotonin 2A receptor activation. *Current Biology*, 27(3), 451-457.

Jungaberle, H., Thal, S., Zeuch, A., Rougemont-Bücking, A., von Heyden, M., Aicher, H., & Scheidegger, M. (2018). Positive psychology in the investigation of psychedelics and entactogens: A critical review. *Neuropharmacology*, 142, 179-199.

Dolder, P. C., Schmid, Y., Müller, F., *et al.* (2016). LSD acutely impairs fear recognition and enhances emotional empathy and sociality. *Neuropsychopharmacology*, 41(11), 2638-2646.

- Davis, A. K., Barrett, F. S., & Griffiths, R. R. (2020). Psychological flexibility mediates the relations between acute psychedelic effects and subjective decreases in depression and anxiety. *Journal of Contextual Behavioral Science*, 15, 39–45.
- Barrett, F. S., Doss, M. K., Sepeda, N. D., Pekar, J. J., & Griffiths, R. R. (2020). Emotions and brain function are altered up to one month after a single high dose of psilocybin. *Scientific Reports*, 10(1), 1-14.
- Mason, N. L., Kuypers, K. P. C., Reckweg, J. T., Müller, F., Tse, D. H. Y., Da Rios, B., ... & Ramaekers, J. G. (2021). Spontaneous and deliberate creative cognition during and after psilocybin exposure. *Translational psychiatry*, 11(1), 1-13.
- Girn, M., Mills, C., Roseman, L., Carhart-Harris, R. L., & Christoff, K. (2020). Updating the dynamic framework of thought: creativity and psychedelics. *Neuroimage*, 213, 116726.
- Baggott, M. J. (2015). Psychedelics and creativity: a review of the quantitative literature. *PeerJ PrePrints*, 3, e1202v1.
- Sessa, B. (2008). Is it time to revisit the role of psychedelic drugs in enhancing human creativity?. *Journal of Psychopharmacology*, 22(8), 821-827.
- Zegans, L. S., Pollard, J. C. & Brown, D. (1967) The effects of LSD-25 on creativity and tolerance to regression. *Arch. Gen. Psychiatry* 16, 740–749.
- Harman, W. W., McKim, R. H., Mogar, R. E., Fadiman, J., & Stolaroff, M. J. (1966). Psychedelic agents in creative problem-solving: A pilot study. *Psychological reports*, 19(1), 211-227.
- Kraehenmann, R., Pokorny, D., Aicher, H., Preller, K. H., Pokorny, T., Bosch, O. G., ... & Vollenweider, F. X. (2017). LSD increases primary process thinking via serotonin 2A receptor activation. *Frontiers in pharmacology*, 8, 814.
- Murphy-Beiner, A. & Soar, K. (2020) Ayahuasca's 'afterglow': improved mindfulness and cognitive flexibility in ayahuasca drinkers. *Psychopharmacology* 237, 1161–1169.
- Frecska, E., Móré, C. E., Vargha, A., & Luna, L. E. (2012). Enhancement of creative expression and entoptic phenomena as after-effects of repeated ayahuasca ceremonies. *Journal of psychoactive drugs*, 44(3), 191-199.
- Kuypers, K. P. C. et al. (2016) Ayahuasca enhances creative divergent thinking while decreasing conventional convergent thinking. *Psychopharmacology* 233, 3395–3403.

- Mason, N. L., Mischler, E., Uthaug, M. V. & Kuypers, K. P. (2019). Sub-acute effects of psilocybin on empathy, creative thinking, and subjective well-being. *J. Psychoact. Drugs* 51, 123–134.
- Uthaug, M. V. et al. (2018) Sub-acute and long-term effects of ayahuasca on affect and cognitive thinking style and their association with ego dissolution *Psychopharmacology* 235, 1–11.
- Kuypers, K. P. C. (2018) Out of the box: a psychedelic model to study the creative mind. *Med. Hypotheses* 115, 13–16.
- Nijstad, B. A., De Dreu, C. K., Rietzschel, E. F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European review of social psychology*, 21(1), 34-77.

### **Creativity Literature**

This project will draw upon the vast amount of creativity research that I have been exposed to over the past two years of completing this graduate degree.

- Jarvis, C. (2019) *Creative calling: Establish a daily practice, infuse your world with meaning, and succeed in work + life*. HarperBusiness.
- Runco, M. A. (2019). *Dynamic perspectives on creativity*. Springer.
- Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity research journal*, 24(1), 92-96.
- Fresco, D. M., Williams, N. L., & Nugent, N. R. (2006). Flexibility and negative affect: Examining the associations of explanatory flexibility and coping flexibility to each other and to depression and anxiety. *Cognitive Therapy and Research*, 30(2), 201-210.
- Forgeard, M. J., & Elstein, J. G. (2014). Advancing the clinical science of creativity. *Frontiers in psychology*, 5, 613.
- Beaty, R. E., Kenett, Y. N., Christensen, A. P., Rosenberg, M. D., Benedek, M., Chen, Q., & Silvia, P. J. (2018). Robust prediction of individual creative ability from brain functional connectivity. *Proceedings of the National Academy of Sciences*, 115(5), 1087-1092.
- Kaufman, J. C., Plucker, J. A., & Baer, J. (2008). *Essentials of creativity assessment*. John Wiley & Sons.

Mok, L. W. (2014). The interplay between spontaneous and controlled processing in creative cognition. *Frontiers in human neuroscience*, 8, 663.

Dietrich, A. (2004). The cognitive neuroscience of creativity. *Psychonomic bulletin & review*, 11(6), 1011-1026.

Smith, S. M., & Ward, T. B. (2012). Cognition and the creation of ideas. *The Oxford handbook of thinking and reasoning*, 456-474.

Dubitzky, W., Kötter, T., Schmidt, O., & Berthold, M. R. (2012). Towards creative information exploration based on Koestler's concept of bisociation. In *Bisociative Knowledge Discovery* (pp. 11-32). Springer, Berlin, Heidelberg.

## **SECTION THREE: PROCESS PLAN**

### **Plan to Achieve My Goals and Outcomes**

My primary goal is to cultivate myself as a thought-leader in the psychedelic space, at the forefront of the intersection between psychedelics, creativity training and leadership development.

The primary goal for this project is to create content that I can draw upon for a variety of situations, whether it's for my online programs or delivering a keynote speech in front of an audience. This content is focusing on the intersection between psychedelic research and creativity research, exploring where they overlap. I will be using 4 P's of creativity, initially developed by Mel Rhodes in 1961, as my core framework, making a case for how the existing psychedelic research offers us some clues as to the correlation between psychedelics and creativity that has been so widely expressed through anecdotal reports. I will take this one step further by showing how we can leverage the windows of heightened cognitive flexibility and combine psychedelic experiences with creativity training and leadership development to increase positive outcomes.

I will spend time diverging by doing research and collecting key data, organizing the literature into the four "chunks" of the creative person, process, produce and place. Then I will converge by selecting the key learning objectives for each module.



## **Project Timeline**

Project timeline as follows:

- By the end of February: Create a rough outline and overview for the year and identify at what point in the timeline the sections on emotional intelligence will be introduced.
- By mid March: Outlines for first two sub-components of emotional intelligence: self-awareness, self-management. How are these defined? What are the benefits of improving these qualities? How can psychedelics help us develop these skillsets? And can the wisdom teachings of Eastern philosophy help us cultivate these skillsets? What practices can we learn and train in?
- By April 1st: Outlines of second two sub-components of emotional intelligence: social awareness and social management. How are these defined? What are the benefits of developing these qualities? How can psychedelics help us develop these skillsets? And can the wisdom teachings of Eastern philosophy help us cultivate these skillsets? What practices can we learn and train in?

## **Evaluation Plan**

The outcomes of this project will be determined by evaluating whether the following questions were clearly answered in the training curriculum:

- Define the 4 P's of creativity
- Make a strong argument to demonstrate that the existing psychedelic literature already makes a case for how psychedelics supports the development of each of the 4 P's of creativity.

- Why is creativity training essential for leadership development?
- Are the 4 P's of creativity clearly outlined with supportive arguments?
- How can we use these cognitive tools to become thought-leaders in a new field?

This curriculum will be shared with peers and mentors for feedback on the efficacy of the training and to determine if all questions outlined above were clearly understood.

## **SECTION FOUR: PROJECT OUTCOMES**

The outcome of this project resulted in a detailed powerpoint presentation containing over 150 slides. The total slide deck is not included in this paper submission, however, I include key slides in the Appendix for reference. This presentation starts by highlighting the importance of creativity training as an essential skillset for leaders as we face a VUCA world marked by unprecedented change. It then makes a strong case for how psychedelic experiences can support and enhance the 4 P's of creativity. This presentation introduces the reader to core creativity concepts, and uses visual diagrams to allow readers to follow a sequential and logical line of thinking that highlights parallels between psychedelics and the multi-faceted nature of creativity. It makes a strong argument that they are indeed related, despite the lack of scientific research explicitly exploring the connection between the two. The outcomes of this process extended far beyond the initial aim, allowing me to develop two unique frameworks that I believe can be a valuable contribution to the psychedelic space.

### **Framework #1: Applying the Systems Change Model of Creativity to Set & Setting**

The first framework I created that led to a significant outcome for this project was developed by reviewing the extended model of the 4 P's of creativity called the Systems Change Model of Creativity (Puccio et al., 2005), as shown in Appendix A. The 4 P's was initially developed by Mel Rhodes in 1961 defined as the creative person, process, product and press. I overlaid the Systems Change Model of Creativity on top of our current understanding of “set and setting” – a foundational concept in the psychedelic space, and then used the systems change model of creativity to develop and extend the set and setting framework to include “process” and “outcomes.” I believe this is a meaningful contribution to the psychedelic industry, enabling us to

build a more comprehensive framework by naming and identifying two other important aspects to the psychedelic experience; the process one goes through (the psychedelic “journey” for example) and the outcomes of that experience. This core argument made in this section is that the lens through which we look at psychedelic experiences influences the outcomes. This invites a broader perspective, extending beyond the use of psychedelics to alleviate the symptoms of mental illness, but also as a powerful tool to support creativity. I decided to call this model The Systems Change Model for Psychedelic Creative Leadership. The four slides laying out this process are included in Appendix A.

### **Framework #2: Applying the New Systems Change Model to Develop the “5 P’s” of Creativity.**

Once I developed this new framework, I then used The Systems Change Model for Psychedelic Creative Leadership as a base starting point to develop and explore the 4 P’s of creativity. The initial aim of this project was to make an argument that despite the lack of psychedelic research specifically exploring the connection between psychedelics and creativity, there was still enough evidence to make this case. Through this process, it led me to develop another new model, extending the 4 P’s of creativity by adding a 5th P to the initial model developed by Rhodes in 1961. Although other people in the field of creativity have added a 5th P, including Dean Keith Simonton who made an argument for adding “persuasion” to the original 4 P’s (Simonton, 2015), I felt compelled to create another version of the 5 P’s that is more relevant to suit the needs of the curriculum I am developing. I offer an in depth review of the the project and the process that allowed me to arrive at this outcome in the next section of this paper.

This presentation helped me to structure and develop my thinking and cultivate my thought-leadership within a specific niche in the psychedelic space. It will serve as a

foundational starting point to build out my curriculum in the months and years to come, and also doubles as a structural outline for a book proposal.

## **SECTION FIVE OVERVIEW OF PROJECT: PROCESS AND KEY LEARNINGS**

This was a very ambitious project that was quite the undertaking. Through offering an overview of this process, I will simultaneously walk you through my thinking process that allowed me to arrive at both of these significant outcomes, highlighting the most essential key learnings and insights I had along the way, of which there were many. For the sake of brevity, I will simply highlight the essence of core learnings.

I started by organizing my thinking process through categorization and mind-mapping, allowing me to start connecting hidden dots between the existing psychedelic literature and how it relates to the 4 P's of creativity. I created a table highlighting the 4 P's and started accumulating key data points under each category, a process that became incredibly challenging yet highly insightful, enabling me to evolve and shape my thought-leadership in this field and specific niche. The outcome of this process resulted in adding a 5th "P" to the 4 P's of creativity. I called this 5th P "Practice" to encapsulate creative practices, including creative thinking skills that can support the creative process. I initially planned on sequentially moving through the 4 P's by starting with:

1. Creative Person (including creative thinking)
2. Creative Process
3. Creative Product
4. Creative Press (I renamed to "Place")

However, as a result of mind mapping and filling in all the sub-categories that correlate to each one of the 4 P's, it naturally led me to revise my approach by adding this 5th P and placing it after creative process. A modified version now moves through the 5 P's by starting with:

1. Creative Person
2. Creative Process
3. Creating Practices (thinking skills that support the creative process)
4. Creative Product (or outcomes)
5. Creative Place

#### **Dividing the Creative Person into Two Separate Categories: Cognitive & Affect, Fixed Vs. Malleable**

To elaborate further on how and why I came to this outcome, the creative problem solving process is improved through the cultivation of specific cognitive and affect skill sets that a person can develop. In *Creative Leadership: Skills That Drive Change* (Puccio et al., 2011), authors Dr. Puccio, Mance, and Murdock identify a range of both cognitive and affective skills that can be taught and developed to help support individuals to more effectively engage in the creative problem solving process. Affective skills relate to attitudes, feelings and emotions, influencing the way we think and the perceptual lens through which we view reality. An attitude refers to a way of thinking, a belief or an emotion, a point of view we hold about someone or something in particular. Each step of the creative problem solving process has associated affective skills. At first glance, it seemed logical that the affective skills that support the creative problem solving process clearly remain under the category of the “creative person.”

As mentioned above, in addition to the affective skills, the creative problem solving process is also improved through the cultivation of specific cognitive skill sets. As stated, the

affective skills fall under the category of the “creative person” but what of the cognitive skill sets, otherwise known as creative thinking skills? I could make an argument that they should fall under the creative person category, although there are such a large number that we can identify, I deemed it appropriate to offer this its own category that sits at the intersection, overlapping both the creative person and the creative process. As mentioned, I called this category containing the cognitive or creative thinking skills, creative “practices”.

For the list of creative thinking skills or creative “practices” that one can learn and engage with on a daily basis, I started the process by diverging, reviewing the work of E. Paul Torrance, Teresa Amabile, Dr. Puccio, Mance and Murdock as well as Dr. Shelley Carson. From there, I then modified and expanded the list of creative thinking skills within the context of what might be developed as a daily (or weekly) “practice”, to include as a core focus in my framework and associated curriculum, making a case for how psychedelic experiences might be able to support these creative thinking skills.

I started by reviewing the seminal work of E. Paul Torrance and his list of creativity skills. The comprehensive creativity skills as summarized from *The Search for Satori and Creativity* (Torrance, 1979) are listed in Appendix B, Table 1. This list of skills was further developed and synthesized by Cyndi Burnett and colleagues. (Burnett, Figliotti & Saltzberg, 2021). An image of these skills can be found in Appendix B, Table 2.

To make matters more nuances and complicated, one could make an argument that many of the creative thinking skills outlined could either fall into the creative person category or the newly created, creative practices category. Let’s look at curiosity as an example. A creative person tends to be highly curious, yet curiosity is a mindset that one can develop and indeed

practice on a regular basis, especially if given the adequate training to do so. The same could be said for mindfulness, playfulness and cultivating attitudes such as enhancing one's tolerance towards complexity and ambiguity, and learning to embrace a challenge, related to a growth mindset (Dweck, 2008).

In addition to Torrance's creative thinking skills, I highlighted several of Amabile's creative thinking styles that felt very pertinent to painting a cohesive narrative around creativity practices one can learn to engage with on a daily basis. Amabile's creative thinking styles were drawn from her book *Growing Up Creative: Nurturing a Lifetime of Creativity* (Amabile, 1992). This can be found in Appendix B, Table 3.

In *Creative Leadership* (Puccio et al., 2011, pp. 107-108) offer a list of supporting skills for divergent thinking. This list can be found in Table 4, Appendix B. One could argue that we can learn to develop these as creative practices, or mindsets that we can implement on a daily basis. After accumulating all of this data, I sorted through each skill, labeling each one as either an affect skill or cognitive skill. My initial intention was to simply allocate affective skills to creative person and cognitive skills to the creative thinking "practices" category, yet when I separated it in this way, it wasn't fully adding up the way I initially intended; a challenge that led to another opportunity. After stepping away from the process and allowing my thought process to incubate, I had an illuminating moment that inspired me to delineate between the creative person versus a creative practice by using a general guideline: "fixed" versus "malleable."

As human beings, we all have aspects of ourselves that are easier to influence and change, while others aren't exactly set in stone, but much more rooted in habitual patterns, especially as adults. When I considered which of these tends to be more "fixed" I decided to



allocate personality, psychology and belief systems under the creative person. It's worth noting that although using the word "fixed" has some limitations, since these aspects of ourselves aren't impossible to change, they are indeed harder to change than other aspects of ourselves. I decided that using the word "fixed" still highlights a core point.

Under the creative person category, I choose to focus on two primary metrics, one dimension of personality and another dimension of psychology. The first was the "Big 5 Personality Traits," highlighting the connections between psychedelics, creative achievement and the personality trait known as "openness to experience." The second category I focused on was psychological flexibility, demonstrating how psychedelics can enhance psychological flexibility and the relationship this has to creativity. For an abbreviated outline in presentation format highlighting the connecting between creativity and openness to experience, see Appendix C. For a written analysis exploring the connection between psychedelics and psychological flexibility, see Appendix D.

### **Creative Practices**

Following my previous line of thinking, I then choose to allocate the more "malleable" aspects of the creative person like attitude, mindset, and ways of thinking to the creative "practices" we can more easily implement on a daily basis. Of course, attitude, mindset can still be challenging to influence, yet are still more susceptible to change than personality, belief systems or identity constructs. A deeply entrenched belief influences our perception and also influences the attitude and mindset we show up with in any given situation, so change does still need to be addressed on all levels of the individual. Further refining my thinking process, I realized that training specific creative thinking skills can be a direct pathway towards influencing

attitude and mindset. This key insight played a very crucial role in shaping my thinking, especially as I start to develop my curriculum and played an influential role in the outcomes of this project.

With this new framing in mind, I reviewed all of the various lists of creative thinking skills (as shown in Appendix B) and allocated the ones that could be thought of as practices that target mindset, attitude and ways of thinking, and allocated them to the new creative practices category. Once I had a list of the skills I allocated to creative practices, I started looking for patterns and clustered interdependent skills, further grouping them together in sub-categories. Once they were clustered into sub-groups, I then gave them a broader name, such a “visionary” thinking, “open” thinking, “untethered” thinking, “associative and contextual” thinking, “playful and loose” thinking, “embodied” thinking and “growth-oriented” thinking. Here is the result of that process and the sub-categories of each group allocated to creative practices:

### **1. Visionary Thinking**

- Visualize it Richly and Colorfully
- Enjoy and Use Fantasy
- Get Glimpses of the Future
- Use Imagination

### **2. Open Thinking**

- Keep Open
- Defer Judgment
- Stay curious and questions
- Think broadly
- Produce and Consider Many Alternatives

### **3. Untethered Thinking**

- Seek novelty
- Breaking set & Breaking out of “scripts”
- Breakthrough & Extend the Boundaries
- Look at It Another Way
- Be flexible

#### **4. Associated & Contextual Thinking**

- Make connections (Creativity is about connecting the dots.)
- Put Your Ideas in Context
- Combine and Synthesize

#### **5. Playful and Loose Thinking**

- Leverage humor
- Engage in play
- Take risks

#### **6. Embodied Thinking**

- Be aware of emotions
- Practice Mindfulness
- Make it swing make it ring

#### **7. Growth-Oriented Thinking**

- Embrace challenges
- Persist in the face of difficulty
- Focus on the process
- Tolerate ambiguity
- Embrace complexity
- Fall in love with learning

These seven categories offer a structured outline to form the basis of future curriculum development. To illustrate an example, I will use the “Visionary Thinking” category to highlight a framework that demonstrates the connection between psychedelics and visionary leadership.

### **Exploring the Overlap between Visionary Thinking & Psychedelics**

I deeply resonate with the visionary archetype and find that this narrative so completely mirrors and parallels my own experience with psychedelics. At its most basic definition, a visionary is simply someone who uses their *imagination to envision* a new future of something that doesn’t yet exist. It’s about leaning into what “could be” despite what currently is.

Visionaries engage with and leverage mental imagery and the power of their minds to cultivate an inner vision to see what no one else can see. Visionaries know how to see the unseen and are constantly thinking in terms of “what could be” and they know how to sense the gaps and look for new possibilities. Being a visionary is our birthright and it’s a fundamental aspect of what it means to be human, yet we are rarely explicitly taught how to cultivate this as a necessary skillset and more often than not, we lose touch with our imaginations as we get older.

Psychedelics and “visionary” compounds, reminding us the importance of magical thinking that we were so good at during childhood. As Dr. Robin Carhart-Harris explained in a keynote he gave at The Science of Consciousness in Tuscan in 2016:

I think it’s striking, really, the overlaps between the phenomenology and the underlying neurobiology of infant consciousness and the psychedelic state. Even things like the helplessness, the hyper associative thinking, the magical thinking you can see in both states, fluid flexible thinking, and so on. (Carhart-Harris, 2016).

The very essence of the psychedelic experience fundamentally teaches us the visionary thinking skills that have become so essential for visionary leadership in today's world. They show us how to visualize things that don't yet exist with intensity, richness, color and vividness. As Sir Ken Robinson once said: "creativity is applied imagination" and psychedelics are shown to offer us access to a realm of magical thinking that enhance one's imagination, with potentially long lasting effects. It is also widely known that ayahuasca can boost imagination and that despite having your eye closed, these inner visions can take on a sensation of reality because ayahuasca boosts the intensity of imagination to the same level as regular sense perceptions. (Araujo et. al. 2011). The same was shown for LSD. In one study, brain scans suggested that volunteers were seeing with their eyes shut, though the images they reported were from their imaginations rather than the world outside (Carhart-Harris, 2010). After people directly experience the profundity of the psychedelic state, from my perspective it becomes much easier to inspire leaders to reconnect to and engage in daily visionary practices that have the capacity to influence not only the outcomes of their lives, but of humanity.

To take this narrative one step further and connect it to what indigenous cultures have known for thousands of years, we can frame enhanced imagination as an ability to "see the unseen." This is the essence of what many experience in a psychedelic state and the core of what visionary leadership is all about. María Sabina Magdalena García (22 July 1894 – 22 November 1985) was a Mazatec curandera, who said: "there is a world beyond ours, a world that is far away, nearby and invisible." Many shamans call this the "Spirit Realm" a different dimension of reality that is ever present but requires an altered state of consciousness to open up our field of awareness to perceive it and become more aware of it. This is where shamanic wisdom and

quantum physics start to intersect. Many people who work with sacred plant medicines understand this “invisible” dimension that María Sabina speaks of to be the dimension of energy, frequency and vibration, which is exactly how physicists speak to the quantum realm. As Einstein said: “the field is the sole governing agency of the particle.” This is also considered to be a field of possibility and potentiality. One might argue that this more subtle dimension of reality is the source of creation and all that we see created and made manifest in this solid 3D reality we can perceive with our eyes emanates from this interconnected field, a dimension of reality we can’t perceive with our eyes, but which doesn’t mean, it doesn’t exist. This convergence of shamanic wisdom, science and the felt psychedelic experience tell a narrative that the power to create our reality starts – first and foremost – in our mind. The intention to transmute an idea into reality is the core essence of what creativity is all about. This includes a deeply entrenched mystical aspect that points to the interconnection between dimensions of consciousness from which we create and the manifest outcomes of engaging with and exploring consciousness in new and novel ways.

This is only an example of the intersection and overlap between “visionary thinking”, yet many similar science-backed arguments can be made for “open” thinking, “untethered” thinking, “associative and contextual” thinking, “playful and loose” thinking, “embodied” thinking and “growth-oriented” thinking. Once we can communicate the substantial benefits of each style of thinking, and then teach people how to understand the connection between each style and the psychedelic experiences, it’s much easier to then teach people the skillsets that an individual or team can engage with on a daily basis.

Working through this entire process led me to explore the overlap between creative thinking skills and the creative process, allowing me to identify that underlying both of these aspects of creativity are various states of creative cognition.

### **Creative Cognition Underlying Creative Thinking & The Creative Process**

One of the reasons it can oftentimes feel difficult to pin down creativity is that it's not a single event, but a process that contains various stages. Although the creative process is rarely ever linear, several different models are often used to outline the different stages of the creative process. These models are used as helpful conceptual frameworks, similar to a road map with a compass, allowing people to better understand where they might be within the creative process, and offers guidance to support an individual or group to move through the process more, effectively, creatively and efficiently. Most models typically outline four to five different stages of the creative process. One model often used for the creative problem solving process is a four step process known as Foursight that outlines four key stages:

1. Clarify: Identify the challenge.
2. Ideate: Generate ideas.
3. Develop: Bring ideas to life.
4. Implement: Creating a plan of action.

Similar to Foursight, another model often used is the Thinking Skills Model of Creative Problem Solving developed by Puccio, Mance and Murdock in 2007. A simplified version of the process is outlined as follows. Once you assess the situation, you move through the following three phases:

Clarification

- Exploring the vision
- Formulating the challenge

#### Transformation

- Exploring ideas
- formulating solutions

#### Implementation

- Exploring acceptance
- Formulating a plan.

Another model less frequently referred to, created by James Taylor (Taylor, 2017), an award-winning creativity expert and entrepreneur, outlines five critical stages of the creative process, including:

1. Preparation (also sometimes referred to as discovery or ideation): This stage is all about using divergent thinking to gather, collect, search for and explore information.
2. Incubation: This is part of the process where you step back and digest all the information through subconscious processes like daydreaming or mind-wandering.
3. Illumination: This is the "Aha" moment when insight strikes and is sometimes referred to as "spontaneous insight." Mind-wandering during the previous incubation phase allows insights to arise. That's why we often get our best ideas in the shower, driving home from work, or hiking in the woods.
4. Evaluation: Now, it's time to evaluate the different options and various paths forward. Is this an original and novel idea that also serves a useful function? Will it be commercially viable?



5. Implementation: At this final phase of the creative process, you create a plan or strategy to anchor the idea into manifest reality.

This 5-stage model was built upon from the original work of Graham Wallas who outlined the four stages of the creative process — preparation, incubation, illumination, and verification, in his book *The Art of Thought*, dating back to 1925 (Wallas, 1925). For the purpose of this project, I decided to use both the Thinking Skills Model as well as James Taylor's model to help illuminate a foundational and core connection between psychedelics and creativity, the value of entering a mode of cognition called “unconstrained” cognition.

In this fascinating research paper titled *Updating the Dynamic Framework of Thought: Creativity and Psychedelics* (Girn 2020), researcher Manesh Girn explores the dynamic nature of various neurocognitive processes that underlie creative thinking, and identifies how psychedelics can be valuable tools in supporting these various cognitive states that underlie the creative process. The paper concludes that the psychedelic state lends itself towards what's known as *unconstrained cognition* (Girn, 2020).

The key learning here is that being a "creative", or fostering creative thinking skills isn't about learning to acquire a singular mental state, but rather, multiple states of cognition. Different stages of the creative process require varying and dynamic *cognitive states*. It's not fixed, but instead, highly dynamic where we benefit from the fluidity of varying mental states that facilitate both divergent and convergent thinking skills. The creative process is thus supported by this fluid movement between multiple states of mind, including mind-wandering, rumination, and focused goal-directed thinking. Some of these mental states are more constrained (focused), while other cognitive processes like daydreaming, mind-wandering or

open focus awareness are enhanced by becoming untethered from the habitual anchors of our mental constraints.

Once I started reviewing both the psychedelic and creativity literature, specifically looking for and paying attention to words such as “constrained” or “unconstrained”, I started realizing that the very core overlap between psychedelics and creativity is this aspect of unconstrained cognition, strengthening my understanding of how psychedelic experiences can support the multifaceted nature of creativity.

As previously spoken to, each of these stages of the creative process requires a range of cognitive and affective skill sets, that helps to facilitate both divergent and convergent thinking skills throughout the entire process. Experiencing unconstrained cognition can be extremely supportive and helpful for cultivating divergent thinking skills such as visionary thinking, open thinking, “untethered” thinking, playful and loose thinking, as well as associative and contextual thinking, supporting various aspects and stages of the creative process.

Unconstrained cognition is especially important during the phase of creative generation or ideation (phases two and three—**incubation** and **illumination**—of the 5 step model proposed by Jame Taylor above) potentially enhancing one's capacity to discover highly novel and original ideas, pointing to the core definition of creativity.

Following this line of thinking, I reviewed another paper that supported this argument. In a study that dates back to the '60s, twenty-seven professionally employed male scientists and engineers working on career-related problems were invited to trip on psychedelics within the context of a carefully structured problem-solving session. The study concluded that "psychedelic

agents seem to facilitate creative problem-solving, particularly in the illumination phase”  
(Harman WW, 1966).

The illumination phase of the creative process also points to a mode of cognition that may prove to be fertile ground for spontaneous insight. In a study titled *Spontaneous and deliberate creative cognition during and after psilocybin exposure* authors Mason, Kuypers, et. al. conclude:

In contrast, spontaneous insights tend to occur in a mental state characterized by unrestrained cognition and defocused attention, and tend to be more random, unfiltered, and bizarre; a mental state almost synonymous with the characterization of the psychedelic state. (Mason, et. al., 2021).

Scanning the creativity literature, a paragraph from *Creative Leadership* by authors Puccio, Mance, and Murdock particularly stood out:

Ackoff and Vergara (1988) defined creativity as the ability to modify self-imposed constraints. Those authors went on to suggest that “it is clear that procedures for enhancing it (creativity) must either prevent the self-imposition of constraining assumptions or facilitate their removal. (Puccio, Mance, Mudock, 2015).

At its essence, the psychedelic experience lends itself to an extreme form of unconstrained cognition, an opportunity to find freedom from cognitive constraints – an experience that is otherwise very difficult to replicate by other means.

### **Creative “Product” or Outcomes**

Building upon The Systems Change Model for Psychedelic Creative Leadership, I had to shift my thinking to draw parallels between the creative “product” and how this relates to the

psychedelic experience. I framed this narrative around “what is the product” of your psychedelic experience? Another way to frame this question is to look at the “outcomes.” What is the outcome of your experience? Were you able to make a new choice in your life that led to a novel outcome? Through this process, I also demonstrated how we can make a case that the same underlying reasons that psychedelics help to alleviate depression are also the same reasons they can support creative thinking and creative problem solving. This contributed to my original statement that when we look at psychedelics through the lens of creativity, we can indeed influence the outcomes, encouraging people to find novel, original ideas to challenges faced on a daily basis.

### **Creative Place**

Interestingly, the foundational understanding of unconstrained cognition, including what enhances and inhibits it, can also play an influential role in understanding the intersection between psychedelics and creativity. Particularly looking at creativity research focused on aspects of the creative environment, we can apply this understanding to reveal new insights to “setting” of set and setting.

One of the key takeaways from this section of the project was the insight illuminated by Donal Rattner, author of *My Creative Space: Hope to Design Your Home to Stimulate Ideas and Spark Innovation* (Rattner, 2019). He writes: “Our mental space (*i.e., idea space*) expands and contracts in direct proportion to our perception of physical space, both real and imagined.” This is why research shows that we tend to think more creatively in rooms with taller ceilings (Meyers-Levy and Zhu, 2007), or why windowed environments can facilitate creative task

performance by restoring cognitive capacity, reducing stress, mental fatigue, and perceived risk, and promoting a sense of freedom and openness (Rattner, 2019 p.47).

Researchers Steidle and Werth (2013), in a series of six studies, investigated the effect of light and darkness on creative performance and found that dim illumination improved creative performance. Specifically, the authors argued that dim illuminance or darkness promoted feelings of *freedom from constraints* and induced a global, explorative processing style, which in turn enhanced creative performance.

This highlights another striking yet hidden connection between psychedelics, set and setting, and creativity. When we are in a psychedelic experience, whether our eyes are open or closed, we tend to feel a sense of openness, expansion, and a palpable sense of the vastness of our surroundings and the universe at large. Oftentimes we journey at night, when the lights are dimmed and with an eye mask to explore unconstrained modes of cognition. We can apply this research to consciously shape our environments and physical spaces to specifically tailor them to align with the outcomes of enhanced creative performance. For example, consciously choosing to dim the lights when exploring visionary or ideational thinking to support complex problem solving. This is not only supported by creativity research but also parallels our understanding of the psychedelic experience itself. This is a perfect example of how I can tailor curriculum within the context of psychedelic leadership. For leaders who currently have a relationship with psychedelics or sacred plant medicines, I can leverage their embodied knowing and direct experiential awareness with both psychedelic research and creativity research that further supports them in understanding the underlying mechanisms for why one might dim the lights during creative problem solving, inviting them to leverage what they experience in a psychedelic

journey to strengthen their creative leadership in their everyday lives. When we have a deeper understanding as to why one might engage in a practice, this can support and even motivate one's behavior towards taking action to align with a desired outcome.

### **Key Learnings**

The process of engaging in this project, and exploring the connection between psychedelics and creativity within the context of leadership developed truly enhanced and broadened my understanding of the multifaceted nature of all three of these fields of study. This project stretched me to my limits on more than one occasion where I had to draw upon perseverance, grit, focus, and intrinsic motivation. As authors Dr. Puccio, Mance, and Murdock write in *Creative Leadership: Skills That Drive Change* (Puccio et al., 2011), successful leaders are perpetual learners who have an insatiable appetite to:

- Develop new insights
- Explore new ideas
- Entertain new challenges
- Push the boundaries of their own self-knowledge.

This project was an intensive crash course on embodying all four aspects of successful leadership. Moving through this project taught me many of the thinking skills I outlined above, including how to tolerate complexity and ambiguity, be flexible in my thinking, look at the information from different perspectives, seek novelty, combine and synthesize, breakthrough and extend the boundaries – just to name a few of the many creative thinking skills regularly embraced throughout this project.

This project was yet another reminder that challenges are an opportunity for personal growth and may also present an opportunity for cultivating original ideas. Although dividing up the creative landscape into four distinct categories can help facilitate our understanding of creativity, and was a relevant place to start, it also presented some obvious challenges as we cannot always draw hard lines between these categories but must see them as highly interdependent and interconnected, oftentimes blurring the lines between them. For example, the characteristics and traits of the creative person plays a large and influential roll in how one navigates through and engages with the creative process. The core takeaway from this was to break through and extend the boundaries and lines created by previous creativity researches and not simply accept it “as the way it is” but to leverage it and extend previous models, empowering myself with creative freedom to develop something new. Through wrestling with this challenge, I was able to move through this difficult process and arrive at an outcome that I believe can play an influential role in our understanding of psychedelics and the novel experiences they offer us. Through using associative and contextual thinking skills, I was able to apply the systems change model for creativity to an entirely unrelated field, extending existing conceptual models to develop our understanding of the psychedelic concept of “set and setting”.

### **What I See Myself Doing Next**

There is still so much yet to be explored and hidden dots between psychedelics and creativity yet to be connected. This project and the subsequent models I developed can form the basis of further research in the psychedelic space and lend insights into how we choose to work with psychedelics. What I see myself doing next is continuing to work on and develop this framework and use it to draft an outline for a book proposal. This outlines is also a foundational

starting point for the development of a year long curriculum that supports both the preparation and integration of psychedelic experiences that focuses on supporting and training heart-centered and values driven leaders for a new era.

### **Conclusion**

From my perspective, the core essence of psychedelic leadership is about consciously working with sacred plant medicines with the intention of cultivating a new vision for humanity – a vision built on the foundations of being in right relationship with ourselves, with each other and with the earth. I personally don't believe that it's a coincidence that as we face this time of unprecedented change, psychedelics are simultaneously entering the mainstream faster than ever before. As Dennis McKenna expressed to me in a conversation for the Psychedelic Leadership Podcast, he said: “psychedelics are the neurotransmitters of the Gaian Mind, telling us to wake up!” I believe psychedelics are directly showing us how to leverage the use of our imaginations to breakthrough and extend the boundaries of conventional thinking, inspiring us to expand what we believe is possible to create with our lives. This is the essence of what visionary leadership is all about.

Once we hold a vision for what's possible, a vision that stirs the resonant frequency of inspiration in our hearts to step out and take action to anchor and transmute that vision into reality, then we embark on the path of creative leadership. As Warren Bennis, a pioneer in the field of leadership once said: “Leadership is the capacity to translate vision into reality” – and the exact same could be said for creativity. Creativity is the capacity to translate vision into reality. This path requires courage, vulnerability, stamina, dedication, perseverance and can be considered a powerful path of personal growth and transformation. This is a story of who we are



becoming, both individually and collectively. When we hold a vision for what's possible, we then need to step up, rise to the occasion and become the living embodiment of someone who can make that vision a reality. This is how psychedelics are powerful co-creative allies in shaping us, molding us into the heart-centered leaders who can not only adapt in times of change, but find novel solutions to the most complex challenges we face.

## REFERENCES

- Chapter 1: The future of jobs and skills*. World Economic Forum. <https://reports.weforum.org/future-of-jobs-2016/chapter-1-the-future-of-jobs-and-skills>
- Abdollahi, A., Abu Talib, M., & Motalebi, S. A. (2015). Emotional intelligence and depressive symptoms as predictors of happiness among adolescents. *Iranian Journal of Psychiatry and Behavioral Sciences*, 9(4), e2268. <https://doi.org/10.17795/ijpbs-2268>
- Adobe (2012, April 23) *Study reveals global creativity gap*. Adobe <https://news.adobe.com/news/news-details/2012/Study-Reveals-Global-Creativity-Gap/default.aspx>
- Amabile, T. (1992). *Growing up creative: Nurturing a lifetime of creativity*. Self published.
- Baggott, M. J. (2015). Psychedelics and creativity: a review of the quantitative literature. *PeerJ PrePrints*, 3, e1202v1.
- Barrett, F. S., Doss, M. K., Sepeda, N. D., Pekar, J. J., & Griffiths, R. R. (2020). Emotions and brain function are altered up to one month after a single high dose of psilocybin. *Scientific Reports*, 10(1), 1-14.
- Barnosky, A., Matzke, N., Tomiya, S. et al. (2011) Has the Earth's sixth mass extinction already arrived? *Nature* 471, 51–57
- Barron F and Harrington DM. (1981) Creativity, intelligence, and personality. *Annual Reviews of Psychology* 32: 439-476.
- Beaty, R. E., Kenett, Y. N., Christensen, A. P., Rosenberg, M. D., Benedek, M., Chen, Q., & Silvia, P. J. (2018). Robust prediction of individual creative ability from brain functional connectivity. *Proceedings of the National Academy of Sciences*, 115(5), 1087-1092.
- Bendzsa, C. (2010, May 18) IBM 2010 global CEO study: creativity selected as most crucial factor for future success. IBM. <https://www.ibm.com/news/ca/en/2010/05/20v384864m81427w34.html>
- Blatchford, E., Bright, S., & Engel, L. (2021). Tripping over the other: Could psychedelics increase empathy? *Journal of Psychedelic Studies*, 4(3), 163-170.
- Bradberry, T., & Greaves, J. (2009). *Emotional intelligence 2.0*. TalentSmart.
- Burnett, C. Figliotti, J., Saltzberg, B. (2021) *Weaving creativity into every strand of your curriculum*. Self published.

- Carhart-Harris, R. L. (2018). The entropic brain-revisited. *Neuropharmacology*, 142, 167-178.
- Carhart-Harris, R. L., & Nutt, D. J. (2017). Serotonin and brain function: a tale of two receptors. *Journal of Psychopharmacology*, 31(9), 1091-1120.
- Carhart-Harris, R. L., Leech, R., Hellyer, P. J., Shanahan, M., Feilding, A., Tagliazucchi, E., Chialvo, D. R., & Nutt, D. (2014). The entropic brain: a theory of conscious states informed by neuroimaging research with psychedelic drugs. *Frontiers in Human Neuroscience*, 8, 20.
- Carhart-Harris, R. L., Leech, R., Williams, T. M., Erritzoe, D., Abbasi, N., Bargiotas, T., & Nutt, D. J. (2012). Implications for psychedelic-assisted psychotherapy: functional magnetic resonance imaging study with psilocybin. *The British Journal of Psychiatry*, 200(3), 238-244.
- Dawn, L. "Host" (2021, October 27) Improve Creative Thinking with Psychedelics as Tools for Learning episode 38, The Psychedelic Leadership Podcast. <https://lauradawn.co/ep-38-improve-creative-thinking-with-psychedelics-as-tools-for-learning-with-dennis-mckenna/>
- Davis, A. K., Barrett, F. S., & Griffiths, R. R. (2020). Psychological flexibility mediates the relations between acute psychedelic effects and subjective decreases in depression and anxiety. *Journal of Contextual Behavioral Science*, 15, 39–45.
- Davidson, P. (2017, December 1) Automation could kill 73 million US jobs by 2030. *Transport Topics*. <https://www.ttnews.com/articles/automation-could-kill-73-million-us-jobs-2030>
- de Araujo, D. B., Ribeiro, S., Cecchi, G. A., Carvalho, F. M., Sanchez, T. A., Pinto, J. P., ... & Santos, A. C. (2012). Seeing with the eyes shut: Neural basis of enhanced imagery following ayahuasca ingestion. *Human brain mapping*, 33(11), 2550-2560.
- Dietrich, A. (2004). The cognitive neuroscience of creativity. *Psychonomic bulletin & review*, 11(6), 1011-1026.
- Dolder, P. C., Schmid, Y., Müller, F., *et al.* (2016). LSD acutely impairs fear recognition and enhances emotional empathy and sociality. *Neuropsychopharmacology*, 41(11), 2638-2646.
- Dubitzky, W., Kötter, T., Schmidt, O., & Berthold, M. R. (2012). Towards creative information exploration based on Koestler's concept of bisociation. In *Bisociative Knowledge Discovery* (pp. 11-32). Springer, Berlin, Heidelberg.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Random House.

- Forgeard, M. J., & Elstein, J. G. (2014). Advancing the clinical science of creativity. *Frontiers in psychology*, 5, 613.
- Frecska, E., Mór , C. E., Vargha, A., & Luna, L. E. (2012). Enhancement of creative expression and entoptic phenomena as after-effects of repeated ayahuasca ceremonies. *Journal of psychoactive drugs*, 44(3), 191-199.
- Fresco, D. M., Williams, N. L., & Nugent, N. R. (2006). Flexibility and negative affect: Examining the associations of explanatory flexibility and coping flexibility to each other and to depression and anxiety. *Cognitive Therapy and Research*, 30(2), 201-210.
- George, T., & Wiley, J. (2019). Fixation, flexibility, and forgetting during alternate uses tasks. *Psychology of Aesthetics, Creativity, and the Arts*, 13(3), 305.
- Girn, M., Mills, C., Roseman, L., Carhart-Harris, R. L., & Christoff, K. (2020). Updating the dynamic framework of thought: creativity and psychedelics. *Neuroimage*, 213, 116726.
- Goleman, D., Boyatzis, R., & Mckee, A. (2013). *Primal leadership*. Harvard Business Review Press
- Goleman, D. (2020). Emotional intelligence. Bantam Books.
- Goleman, D., Boyatzis, R. E., Davidson, R. J., Druskat, U. V., & Kohlrieser, G. (2017). *Building blocks of emotional intelligence: The 12 crucial competencies*. More Than Sound, LLC.
- Goleman, D., & Boyatzis, R. (2017). Emotional intelligence has 12 elements. Which do you need to work on. *Harvard Business Review*, 84(2), 1-5.
- Goleman, D. (1996). Emotional intelligence. Why it can matter more than IQ. *Learning*, 24(6), 49-50.
- Harari, N.Y (2020, January 24) *Read Yuval Harari's blistering warning to Davos in full*. World Economic Forum. <https://www.weforum.org/agenda/2020/01/yuval-hararis-warning-davos-speech-future-predications/>
- Harari, N.Y (2020, January 24) *Read Yuval Harari's blistering warning to Davos in full*. World Economic Forum. <https://www.weforum.org/agenda/2020/01/yuval-hararis-warning-davos-speech-future-predications/>
- Harman WW, McKim RH, Mogar RE, et al. (1966) Psychedelic agents in creative problem-solving: a pilot study. *Psychol Rep* 19: 211-227.

- Holze, F., Avedisian, I., Varghese, N., Eckert, A., & Liechti, M. E. (2021). Role of the 5-HT2A receptor in acute effects of LSD on empathy and circulating oxytocin. *Frontiers in Pharmacology*, *12*, 1790.
- Howkins, J. (2013) *The creative economy*. Penguin Books.
- Jarvis, C. (2019) *Creative calling: Establish a daily practice, infuse your world with meaning, and succeed in work + life*. HarperBusiness.
- Jungaberle, H., Thal, S., Zeuch, A., Rougemont-Bücking, A., von Heyden, M., Aicher, H., & Scheidegger, M. (2018). Positive psychology in the investigation of psychedelics and entactogens: A critical review. *Neuropharmacology*, *142*, 179-199.
- Kaufman, J. C., Plucker, J. A., & Baer, J. (2008). *Essentials of creativity assessment*. John Wiley & Sons.
- Kaufman, S. B. (2021). *Transcend: The new science of self-actualization*. TarcherPerigee.
- Kočárová, R., Horáček, J., & Carhart-Harris, R. (2021). Does psychedelic therapy have a transdiagnostic action and prophylactic potential?. *Frontiers in Psychiatry*, 1068.
- Kraehenmann, R., Pokorny, D., Aicher, H., Preller, K. H., Pokorny, T., Bosch, O. G., ... & Vollenweider, F. X. (2017). LSD increases primary process thinking via serotonin 2A receptor activation. *Frontiers in pharmacology*, *8*, 814.
- Kuypers, K. P. C. et al. (2016) Ayahuasca enhances creative divergent thinking while decreasing conventional convergent thinking. *Psychopharmacology* *233*, 3395–3403.
- Kuypers, K. P. C. (2018) Out of the box: a psychedelic model to study the creative mind. *Med. Hypotheses* *115*, 13–16.
- Nijstad, B. A., De Dreu, C. K., Rietzschel, E. F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European review of social psychology*, *21*(1), 34-77.
- Mason, N. L., Mischler, E., Uthaug, M. V. & Kuypers, K. P. (2019). Sub-acute effects of psilocybin on empathy, creative thinking, and subjective well-being. *J. Psychoact. Drugs* *51*, 123–134.

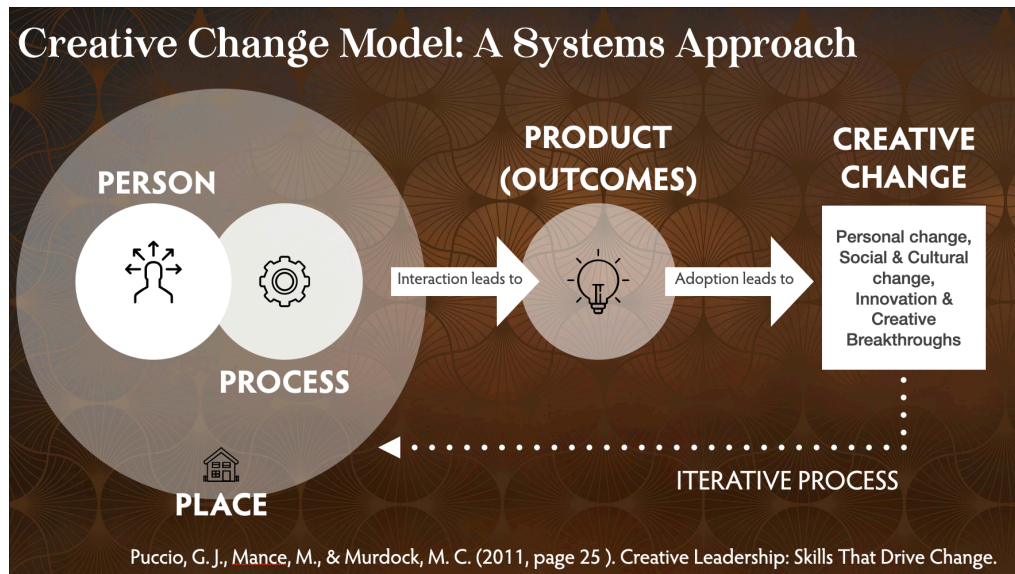
- Mason, N. L., Kuypers, K. P. C., Reckweg, J. T., Müller, F., Tse, D. H. Y., Da Rios, B., ... & Ramaekers, J. G. (2021). Spontaneous and deliberate creative cognition during and after psilocybin exposure. *Translational psychiatry*, *11*(1), 1-13.
- Meyers-Levy, J., & Zhu, R. (2007). The influence of ceiling height: The effect of priming on the type of processing that people use. *Journal of consumer research*, *34*(2), 174-186
- Middlefell R. (1967) The effects of LSD on body sway suggestibility in a group of hospital patients. *Br J Psychiatry* *113*: 277-280.
- Mok, L. W. (2014). The interplay between spontaneous and controlled processing in creative cognition. *Frontiers in human neuroscience*, *8*, 663.
- Murphy-Beiner, A. & Soar, K. (2020) Ayahuasca's 'afterglow': improved mindfulness and cognitive flexibility in ayahuasca drinkers. *Psychopharmacology* *237*, 1161–1169.
- Nijstad, B. A., De Dreu, C. K., Rietzschel, E. F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European review of social psychology*, *21*(1), 34-77.
- Pollan, M. (2018). *How to change your mind: What the new science of psychedelics teaches us about consciousness, dying, addiction, depression, and transcendence*. Penguin Press.
- Preller, K. H., Herdener, M., Pokorny, T., Planzer, A., Kraehenmann, R., Stämpfli, P., & Vollenweider, F. X. (2017). The fabric of meaning and subjective effects in LSD-induced states depend on serotonin 2A receptor activation. *Current Biology*, *27*(3), 451-457.
- Puccio, G. J., Mance, M., & Murdock, M. C. (2011). *Creative leadership: Skills that drive change*. SAGE.
- Rattner, D. M. (2019). *My Creative Space: How to Design Your Home to Stimulate Ideas and Spark Innovation*. Skyhorse.
- Rhodes, M. (1961). An analysis of creativity. *The Phi delta kappan*, *42*(7), 305-310.
- Robinson, K. (2006, February) *Do schools kill creativity?* TED [https://www.ted.com/talks/sir\\_ken\\_robinson\\_do\\_schools\\_kill\\_creativity](https://www.ted.com/talks/sir_ken_robinson_do_schools_kill_creativity)
- Runco, M. A. (2019). *Dynamic perspectives on creativity*. Springer.
- Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity research journal*, *24*(1), 92-96.

- Sessa, B. (2008). Is it time to revisit the role of psychedelic drugs in enhancing human creativity?. *Journal of Psychopharmacology*, 22(8), 821-827.
- Simonton, D. K. (2021). Creativity. In C. R. Snyder, S. J. Lopez, L. M. Edwards, & S. C. Marques (Eds.), *The Oxford handbook of positive psychology* (pp. 357–367). Oxford University Press.
- Sjoberg BM, Jr. and Hollister LE. (1965) The effects of psychotomimetic drugs on primary suggestibility. *Psychopharmacologia* 8: 251-262.
- Smith, S. M., & Ward, T. B. (2012). Cognition and the creation of ideas. *The Oxford handbook of thinking and reasoning*, 456-474.
- Steidle, A., & Werth, L. (2013). Freedom from constraints: Darkness and dim illumination promote creativity. *Journal of Environmental Psychology*, 35, 67-80.
- Torrance, E. P. (1979). The search for satori & creativity.
- Uthaug, M. V. et al. (2018) Sub-acute and long-term effects of ayahuasca on affect and cognitive thinking style and their association with ego dissolution *Psychopharmacology* 235, 1–11.
- Wallas, G. (1926). *The art of thought* (Vol. 10). Harcourt, Brace.
- Whiting, K. (2020, October 21) *These are the top 10 job skills of tomorrow – and how long it takes to learn them*. World Economic Forum. <https://www.weforum.org/agenda/2020/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them>
- Yan, S. (2017, April 28) Artificial intelligence will replace half of all jobs in the next decade, says widely followed technologist. CNBC. <https://www.cnbc.com/2017/04/27/kai-fu-lee-robots-will-replace-half-of-all-jobs.html>
- Zegans, L. S., Pollard, J. C. & Brown, D. (1967) The effects of LSD-25 on creativity and tolerance to regression. *Arch. Gen. Psychiatry* 16, 740–749.

## APPENDIX A

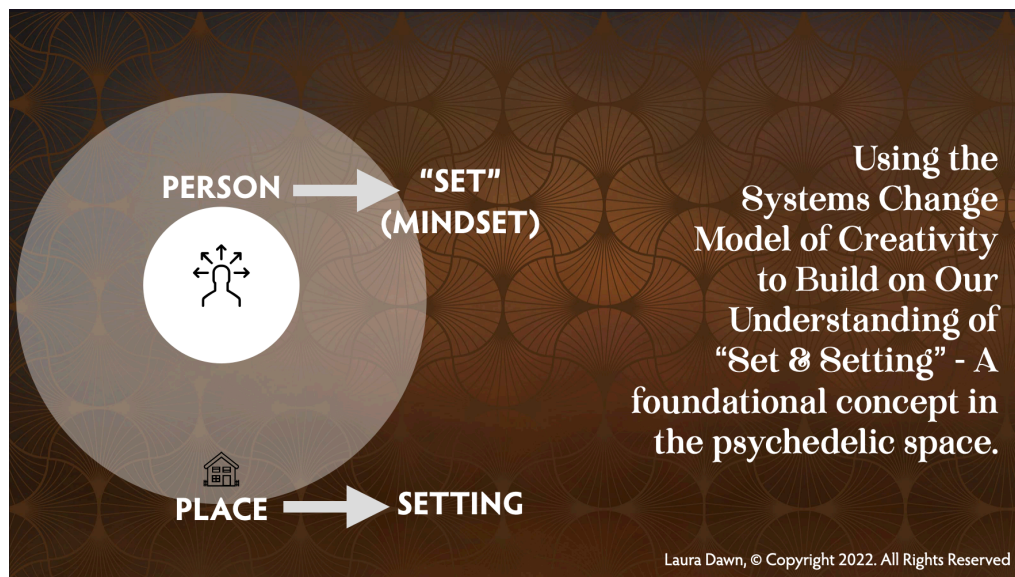
### Creative Change Model: A Systems Approach towards A Systems Change Model for Psychedelic Leadership

Figure 1. Creative Change Model: A Systems Approach



Source: Puccio, G. J., Mance, M., & Murdock, M. C. (2011, page 25 ). *Creative Leadership: Skills That Drive Change*.

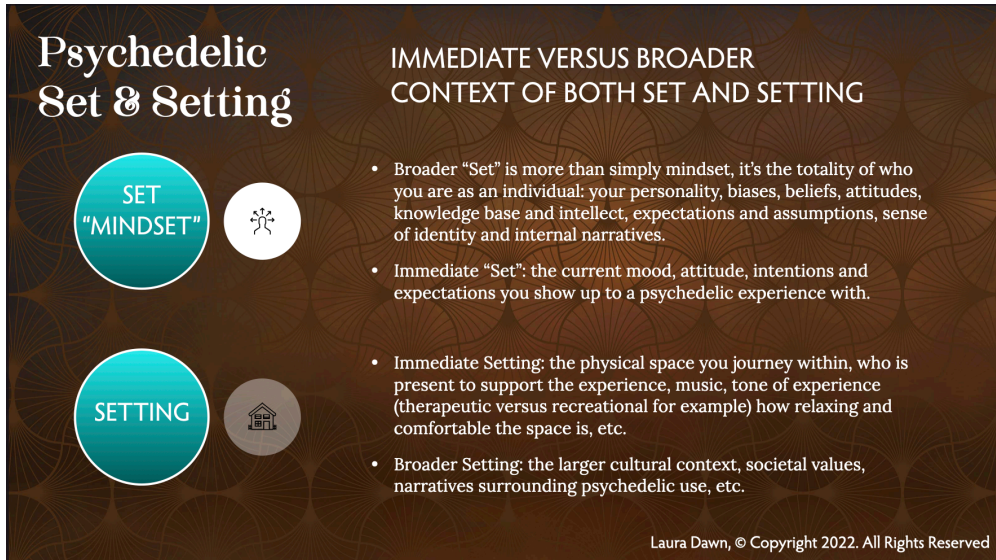
Figure 2: Set & Setting



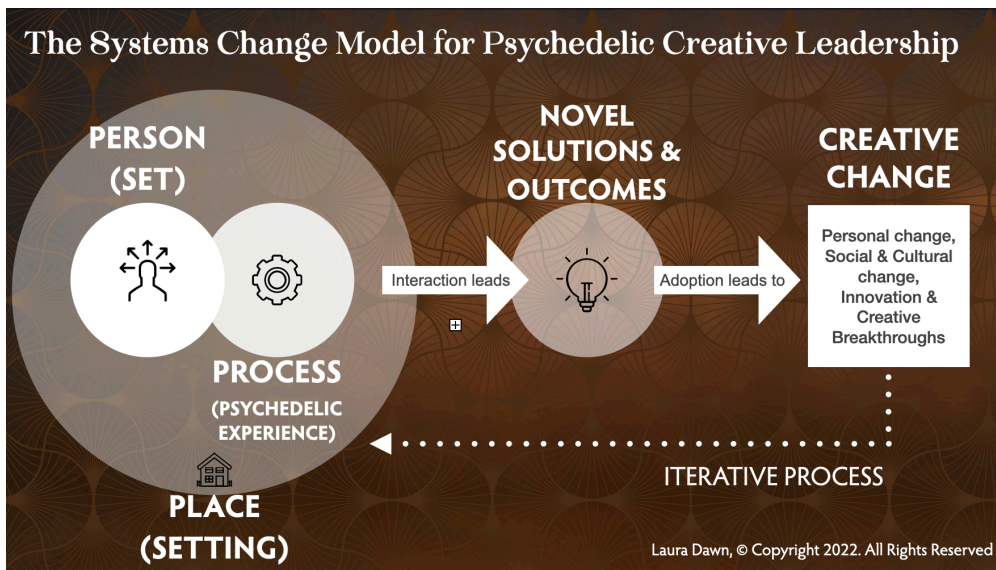


## APPENDIX A (CONTINUED)

**Figure 3: Immediate Vs. Broader Context of Both Set and Setting**



**Figure 4: The Systems Change Model for Psychedelic Creative Leadership**



## APPENDIX B

**Table 1: A comprehensive list of creativity skills, summarized from *The Search for Satori and Creativity* (Torrance, 1979)**

The Problem	The ability to recognize the “real” problem, the ability to get to the essence of the problem and be able to broaden, open up and redefine the problem (Torrance, 1979, p. 13)
Produce and Consider Many Alternatives:	The ability to make a “deliberate effort to look for additional alternatives when you are satisfied with one or more of the alternatives that you already have... to avoid accepting too easily the alternatives that occur immediately” (Torrance, 1979, p. 32).
Be Original	“Getting away from the obvious and commonplace or breaking away from habit bound thinking” (Torrance, 1979, p. 40).
Highlight the Essence	“Involves at the same time synthesis, discarding erroneous or irrelevant information, abandoning unpromising facts or solutions, refining ideas, establishing priorities, and letting a single problem or idea become dominant” (Torrance, 1979, p. 52).
Elaborate - but Not Excessively	“The ability to elaborate and work out plans, implement and sell solutions.” The amount of elaboration required is defined as “It must be elaborated to become of value” and not to the degree “which can become so excessive that people will be overwhelmed by the detail or the expense involved” (Torrance, 1979, pp. 64-65).
Keep Open	When “faced with any incompleteness or unsolved problem” avoid the tendency to “jump to some conclusion immediately...before the person has taken the time to understand the problem, considered important factors involved in the problem, and thought of alternative solutions” (Torrance, 1979, p. 74).
Be Aware of Emotions	“Acceptance of the idea that emotional, nonrational, or suprarational factors are more important in creative thinking than purely cognitive, rational factors...these emotional factors must be understood and used for breakthrough ideas” (Torrance, 1979, p. 86).

Put Your Ideas in Context	“To put parts that are experienced into their bigger context...putting them together in meaningful ways” (Torrance, 1979, p. 100).
Combine and Synthesize	The ability to make “fresh and relevant association of thoughts, facts and ideas, etc. into a new configuration, which pleases – which has meaning beyond the sum of the parts – which provides a synergistic effect” (Torrance, 1979, p. 116).
Visualize it Richly and Colorfully	“The ability to visualize objects, concepts, systems, organizations, processes – the earth, the universe”. “It is important that these images visualized be varied, strong, vivid, lively, and intense...colorful, exciting, unusual, and appealing to the various sense modalities” (Torrance, 1979, p. 126).
Enjoy and Use Fantasy	The ability to use fantasy to create analogies and explore imaginatively so that it promotes a deeper understanding or projection of a situation or experience (Torrance, 1979, pp. 138-139).
Make it Swing - Make it Ring!	The ability to experience “something through two or more sense modalities...to help a person attain exciting insights that he or she would otherwise miss, especially in processing new information” (Torrance, 1979, p. 150).
Look at It Another Way	“The ability to see things in different visual perspectives and to look at things from different points of view...to return to a commonplace object or situation and perceive it in different and exciting ways” (Torrance, 1979, p. 160).
Visualize the Inside	“To be able to visualize beyond exteriors and pay attention to the internal, dynamic workings of things” (Torrance, 1979, p. 168).
Breakthrough – Extend the Boundaries	“Redefining or rewording problems for creative attack...to find the question which, if answered would lead to the creative solution...get away from the ‘more and better of the same’ recipe” (Torrance, 1979, p. 182).

Let Humor Flow – and Use It	The ability to use humor to result in “the production of new, original, humorous remarks, stories, jokes, plays, and the like” to result in “an atmosphere of play” (Torrance, 1979, p. 188).
Get Glimpses of Infinity	To understand that “creativity is infinite. It is shaking hands with the future. And genius is a creative mind adapting itself to the shape of things to come” (Torrance, 1979, p. 194).

**Table 2: Image of Creative Thinking Skills developed by Burnett, Figliotti and Saltzberg, 2020, from Downloaded PDF from [www.uploads/2020/06/CreativeThinkingSkillsfinal.pdf](http://www.uploads/2020/06/CreativeThinkingSkillsfinal.pdf)**

## Creative Thinking Skills

<p><b>Get Glimpses of the Future*</b></p> <p>Predicting, imagining, and exploring opportunities and situations that do not yet exist.</p>	<p><b>Be Aware of Emotions*</b></p> <p>Being conscious of feelings; using, trusting, responding to emotions to better understanding people &amp; situations.</p>	<p><b>Playfulness and Humor*</b></p> <p>Bringing fun and child-like enjoyment into the environment.</p>	<p><b>Break Through and Extend the Boundaries*</b></p> <p>Thinking outside the prescribed requirements.</p>	<p><b>Produce &amp; Consider Many Alternatives*</b></p> <p>Going beyond the obvious and producing a variety of possible solutions, ideas, or options.</p>
<p><b>Enjoy and Use Fantasy*</b></p> <p>Using imagination to enhance experiences.</p>	<p><b>Look at it Another Way*</b></p> <p>Seeing things from multiple perspectives, views, or mindsets.</p>	<p><b>Make it Swing! Make it Ring!*</b></p> <p>Using kinesthetic and auditory senses, and responding to sound and movement.</p>	<p><b>Curiosity</b></p> <p>Reinforcing the internal urge to learn.</p>	<p><b>Put Ideas into Context*</b></p> <p>Putting smaller parts or experiences into a larger framework; putting things together in meaningful ways.</p>
<p><b>Embrace the Challenge*</b></p> <p>Develop an attitude of being open to challenges as opportunities for something new.</p>	<p><b>Visualize it Richly &amp; Colorfully*</b></p> <p>Using vivid, exciting imagery; creating colorful and exciting images that appeal to all five senses.</p>	<p><b>Mindfulness</b></p> <p>Being fully immersed in the present moment.</p>	<p><b>Tolerate the Ambiguity</b></p> <p>Being able to embrace uncertainties.</p>	<p><b>Keep Open*</b></p> <p>Resisting premature closure and the desire to complete things in the easiest, quickest way.</p>
<p><b>Be Original*</b></p> <p>Letting go of the obvious and searching for more novel options.</p>	<p><b>Highlight the Essence*</b></p> <p>Identifying that which is most important or essential in any given situation.</p>	<p><b>Risk-taking</b></p> <p>Willing to take action in the hope of a desired result.</p>	<p><b>Elaborate but Not Excessively*</b></p> <p>Adding details or ideas, developing them; filling in details for possible implementation.</p>	<p><b>Be Flexible*</b></p> <p>Changing one’s mental set to do something differently.</p>

**Table 3: An abbreviated summary of Amabile’s creative thinking styles drawn from Growing Up Creative: Nurturing a Lifetime of Creativity (Amabile, 1989).**

Breaking set	Breaking out of your old patterns of thinking about something” (Amabile, 1989, p. 48).
Thinking broadly	Trying to see as many relationships as possible between different ideas” (Amabile, 1989, p. 49).
Breaking out of “scripts”	Breaking out of well-worn habits for doing things” (Amabile, 1989, p. 49).
Perceiving freshly	Trying to see things differently from the way you or other people normally see them” (Amabile, 1989, p. 49).
“Suspending judgment	Generating as many ideas as possible, without evaluating them right off the bat” (Amabile, 1989, p. 49).
Understanding complexities:	Appreciating the fact that most things are not simple” (Amabile, 1989, p. 48).

**Table 4: A list of supporting skills for divergent thinking from: Creative Leadership (Puccio et al., 2011, pp. 107-108).**

Defer Judgment: hold off evaluation until a later time	Keep an open mind: suspending disbelief and entertaining the potential value of every alternative
Go for quantity (related to fluency)	Quantity leads to quality. Go for a large number of ideas or responses.
Make connections (Creativity is about connecting the dots.)	Leverage associative thinking. Encourages flexible thinking and elaboration. Flexibility: getting variety in kinds or categories of ideas and responses Elaboration: adding to or developing existing ideas or responses
Seek novelty	Be original. Go for something different. Look for options yet to be considered. Leads to breakthrough ideas.

## APPENDIX C

### Psychedelics & Personality Trait Openness to Experience Sequence of Slide Presentation



**Psychedelics & the Creative PERSON**  
PERSONALITY:  
OPENNESS TO EXPERIENCE


OUR PERSONALITY CHARACTERISTICS INFLUENCE HOW CREATIVE WE ARE

Contemporary personality psychologists believe that there are five basic dimensions of personality, often referred to as the "Big 5" personality traits.

The five broad personality traits described by the theory are:

1. OPENNESS TO EXPERIENCE
2. CONSCIENTIOUSNESS
3. EXTRAVERSION
4. AGREEABLENESS
5. NEUROTICISM

Laura Dawn, © Copyright 2022. All Rights Reserved



**Psychedelics & the Creative PERSON**  
PERSONALITY:  
OPENNESS TO EXPERIENCE

THE STRONGEST PREDICTOR OF CREATIVE ACHIEVEMENT IS THE PERSONALITY TRAIT OPENNESS TO EXPERIENCE

“ Openness to experience refers to the extent to which a person actively seeks and appreciates different experiences and tolerates and explores novel situations. (Pervin, 2002)

“ Openness to experience is characterized by a drive for exploring inner and outer worlds, and an intense desire and motivation to seek new information. (Scott Barry Kaufman)

Laura Dawn, © Copyright 2022. All Rights Reserved



“ Looking at creativity across the arts and sciences, Scott and colleagues found that openness to experience was more highly correlated with total creative achievement than other factors that have been traditionally associated with creativity, like IQ, divergent thinking, and other personality traits. Together, these findings suggest that the drive for exploration, in its many forms, may be the single most important personal factor predicting creative achievement.”

SCOTT BARRY KAUFMAN

Laura Dawn, © Copyright 2022. All Rights Reserved




**Psychedelics & the Creative PERSON**

PEOPLE WHO SCORE HIGH ON OPENNESS TO EXPERIENCE:

- Are more **open-minded**
- Have a broad-minded tolerance of others' viewpoints and values
- Are more imaginative and engage in fantasy
- Are more willing to embrace change
- Seek out novel experiences and are more adventurous
- Are more willing to take risks
- Embrace unconventional ideas
- Are intellectually curious and have a curiosity mindset
- Think in terms of abstract ideas
- Are very good at thinking about and making connections between different concepts and ideas.
- Enjoy and engage in complex problem solving
- Are more comfortable with uncertainty and adversity
- Have higher intrinsic motivation
- Score higher in emotional intelligence, pay more attention to inner feelings and experience emotional richness
- Tend to score higher in empathy

The number one characteristic identified for "the global leader of the future" is open-mindedness.

~(Greenberg-Walt and Robertson 2001.)



JOHNS HOPKINS RESEARCH

“ A single dose of a psilocybin can create lasting personality change, particularly in the personality trait known as openness.”

DR. ROLAND R. GRIFFITHS

Source: MacLean, K. A., Johnson, M. W., & Griffiths, R. R. (2011). Mystical experiences occasioned by the hallucinogen psilocybin lead to increases in the personality domain of openness. *Journal of psychopharmacology* (Oxford, England), 25(11), 1453–1461. <https://doi.org/10.1177/0269881111420188>

## APPENDIX D

### **The Connection Between Psychedelics, Psychological Flexibility, Mental Illness & Creativity.**

Psychological flexibility refers to an individual's ability to cope with, accept, and adjust to difficult situations (Burton & Bonanno, 2016; Kashdan, Barrios, Forsyth, & Steger, 2006; Kashdan & Rottenberg, 2010; Kashdan et al., 2006). Psychological flexibility can also be described as an essential set of processes that help people manage stressors and engage in adaptive behaviors that promote values-driven action. (Gloster, Meyer, & Lieb, 2017)

Recently, researchers have theorized that the ability to *flexibly* engage in different thoughts and behaviors that fit situational demands may be most indicative of psychological health (Stange, et. al., 2017). On the other hand, dysfunctions in mental health, including depression and anxiety disorders (Kashdan & Rottenberg, 2010), are theorized to be the result of psychological *inflexibility* or psychological rigidity.

There is also a link between psychological inflexibility and mental rumination which can exacerbate mental illness like depression. As someone who has personally experienced depressive episodes, I am all-too-familiar with the mental loop of depressive cycles. I often associate depression and addiction to being caught in a hamster wheel, unable to step off by way of choosing a new thought. Ruminative thinking can prolong depression because people feel trapped in a thinking loop that is often negatively biased, and not surprisingly, ruminative thinking can interfere with effective problem-solving (Nolen-Hoeksema, 1991) often keeping us stuck playing out the same mental loops with no solutions, further contributing to helplessness and depression.

Interestingly, psychedelics are also theorized to produce increases in psychological flexibility and have been shown to mediate the relationship between acute psychedelic effects and subjective decreases in depression and anxiety (Davis, Barrett, & Griffiths, 2020). This increase in psychological flexibility following a psychedelic experience could explain why people experience a decrease in depression and anxiety following a psychedelic journey.

If we look at mental health on a spectrum that ranges from mental pathology to mental wellbeing, we could make a case that the same reasons that psychedelics help reduce and treat mental illness are the same reasons they help us leverage our capacity to think more creatively. When stuck in the “hamster wheel” of depressive rumination, it requires psychological flexibility to step off the wheel and choose a new thought. In its essence, this is the core of what creative thinking is all about. A defining feature of creativity is flexibility of thought, the ability to create and use new mental categories and concepts to reorganize our experiences (Nijstad, et. al., 2010). Flexibility in creativity has been related to originality of ideas and the ability to break apart from mental fixations (Smith & Ward, 2012). In his book “Wired to Create, Scott Barry Kaufman writes: “research shows that psychological flexibility is associated with high levels of idea generation, engagement with everyday creative activities, and publicly recognized creative achievement” (Kaufman, 2015).

When we look Arthur Kostler’s clever definition of creativity, who said: “creativity is the defeat of habit by originality” – couldn’t we say the exact same thing about the healing of depression or addiction? The healing of depression is also the defeat of habit by originality.

In summary, even though psychedelic research hasn’t directly be conducted on this link between psychedelics, psychological flexibility and creativity, we can look at the existing



literature through a new perceptual lens and still make a strong case simply by connecting the dots.

- Psychological *inflexibility* is shown to be a contributing factor in psychological disfunction and pathology.
- Psychedelics are shown to treat these very same mental illnesses like depression, anxiety, PTSD and addiction.
- The improvement of psychological flexibility is now proving to be a mediating factor the outcomes of psychedelics treating mental illness like depression.
- Psychological flexibility is also considered a core aspect of creative thinking and creative achievement.

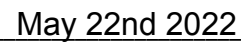
Even though the existing literature doesn't frame it as such, it may be worthwhile to start reframing our understanding of the role psychedelics are playing in the treatment of depression within the larger narrative of creative thinking and creative problem solving.

**Permission to place this Project in the Digital Commons online**

I hereby grant permission to the Department of Creativity and Change Leadership, Center for Applied Imagination at Buffalo State college permission to place a digital copy of this master's Project (insert title) as an online resource.

A handwritten signature in black ink, appearing to read "Zelma", written above a horizontal line.

Name

A handwritten date "May 22nd 2022" written above a horizontal line.

Date