CREATIVITY AS A PROTECTIVE FACTOR TO SUICIDALITY

By
© 2018
Jenelle M. Hallaert
B.A., Concordia University, Nebraska
Submitted to the graduate degree program in Educational Psychology
and the Graduate Faculty of the University of Kansas in partial fulfillment of the
requirements for the degree of Master of Science.

_____
Co-Chair: Dr. Barbara Kerr

_____
Co-Chair: Dr. Tamara Mikinski

_____
Dr. Angela Murray

Date Defended: 3 April 2018

The thesis committee for Jenelle M. Hallaert certifies
that this is the approved version of the following thesis:

CREATIVITY AS A PROTECTIVE FACTOR TO SUICIDALITY

_____
Co-Chair: Dr. Barbara Kerr

_____
Co-Chair: Dr. Tamara Mikinski

_____
Dr. Angela Murray

Date Approved: 3 April 2018

Abstract

The purpose of this thesis was to compare the presence of suicide risk in college student art majors (n = 144) and non-art majors (n = 330), and to determine if flow consciousness cultivated hope, purpose in life, or resilience, when manifested through creative expression. Using a convenience sample, participants (N = 474) completed a battery of assessments measuring depression, suicide risk, creative achievement, flow, hope, purpose, and resilience through an online survey. Hypotheses stated that art majors would be at a greater risk for suicide than non-art majors. Additionally, engagement in flow was predicted to decrease suicide risk as mediated by increased hope, purpose in life, or resilience. Results from the online survey indicated that art majors were not at a greater risk for suicide than their general peers. Furthermore, the relationship between flow and suicide risk was significantly mediated by purpose in life. Purpose in life explained 55% of the variance in suicide risk in both art majors and non-art majors. Findings suggest that creativity can be a protective factor to suicide risk when engaging in an activity that allows creators to experience flow. When creators are in flow, they are also experiencing an increased sense of purpose in life, which can lower their risk of suicide. These findings may help to inform mental health and career counselor interventions when working with college students. Additionally, results from this thesis can advocate for the psychological benefits of creativity via engagement in flow consciousness within the context of policy, education, and family.

Acknowledgments

I would like to thank Dr. Barbara Kerr for helping me form the topic of exploration for this thesis. One of the most challenging obstacles to writing was narrowing down my scope of interests to make the research process manageable and appropriate. Dr. Kerr was able to provide ample information about the construct of creativity that gave direction and focus to my work. This thesis would not have been possible had it not been for Dr. Tamara Mikinski's constant mentorship through the entire process. Her conscientiousness and accountability provided me a needed structure from start to finish. I also want to thank Dr. Angela Murray, and Mr. Jesse Pace for walking through each step of the statistical analyses with me during the final months of the process. Their patience and grace as I learned how to turn theory into quantitative conclusions must be celebrated. To the hundreds of willing souls that took the time to participate in my study, thank you for your honesty. Additionally, I want to say thank you to my friends and family who came along with me during this journey. They both listened and gave constructive criticism through the ups and down of this process. Last, and most importantly, I want to thank God for His help each step of the way, and placing the desire, passion, and curiosity in me to pursue creativity research. I pray that His glorious light shines through this thesis.

My final acknowledgment goes out to all of the creative people who have lost their lives to suicide. Your gifts have not gone unnoticed. May we find better ways to help those creatives who suffer, so their talents are protected, and can continue to enrich our culture.

Table of Contents

Abstract

Acknowledgments

Table of Contents

List of Tables

List of Figures

I. Chapter 1: Introduction

a. Study Purpose…….…….….1

b. Operationalizing Creativity…….…….2

c. Research Objectives and Questions…….2

II. Chapter 2: Literature Review

a. Suicidality Among Creative Adults…….……6

b. Suicidality Among Creative College Students…….……...8

c. Psychopathology as a Risk Factor…….……...9

d. Creativity as a Protective Factor…….……...11

e. Flow Consciousness…….…….….14

f. Hope Found in Creativity and Flow…….…….….15

g. Purpose in Life Found in Creativity and Flow…….…….….18

h. Resiliency Found in Creativity and Flow…….…….21

III. Chapter 3: Method

a. Participants…….…….……...24

b. Measures……24

i. Demographic Form…….25

ii. Patient Health Questionnaire (PHQ-9) …….25

iii. Suicidal Affect-Behavior-Cognition Scale……25

iv. Creative Achievement Questionnaire ……26

v. Flow Short Scale……26

vi. Hope Scale……26

vii. Purpose in Life Test……27

viii. Brief Resilience Scale……27

c. Procedures……27

d. Hypotheses……28

IV. Chapter 4: Results

a. Test of Statistical Assumptions……31

b. Hypothesis Testing……32

i. Objective 1……32

ii. Objective 2……36

iii. Objective 3……40

V. Chapter 5: Discussion, Implications, Limitations, and Future Research

a. Discussion……47

b. Implications……48

c. Limitations……49

d. Future Research……50

VI. References……52

List of Tables

1. Table 1. Means, Standard Deviations, and Independent Samples t-test for Art Majors and Non-art Majors……35
2. Table 2. Bivariate Correlations Among Study Variables for Art Majors and Non-art Majors……39
3. Table 3. Multiple Linear Regression Predictors of Suicide Risk Among Art Majors……43
4. Table 4. Multiple Linear Regression Predictors of Suicide Risk Among Non-art Majors……44

List of Figures

1. Mediation model for art majors: Suicide risk regressed onto flow, mediated by hope, resilience, and purpose in life……45
2. Mediation model for non-art majors: Suicide risk regressed onto flow, mediated by hope, resilience, and purpose in life……46

Chapter 1: Introduction

Study Purpose

There is a label that society tends to place on highly creative people who seem to be troubled or strange. We call them “suffering artists” or “mad geniuses” because it helps us to make sense of what we don’t understand about this unique population. The purpose of this study was to increase the understanding of highly creative college students through an awareness of potential suicide risk within this population, and to determine how the psychological benefits of creativity can help protect them from this risk. Throughout history, research on the suffering artist has been centered around eminent, middle-aged adults. Also, very few of these studies have focused on the presence of suicide. To fill gaps in the literature, this study examined the presence of suicide risk among a typically younger and less eminent population: college students who are art majors.

In addition to identifying the presence of suicide among arts majors, it is also prudent to understand protective factors that may aid in keeping highly creative people alive. Recent research has demonstrated numerous positive outcomes to mental health that arise from engaging in creativity through the arts in both therapeutic interventions (Maujean, Pepping, & Kendall, 2014) and everyday experiences (Conner, DeYoung, & Silvia, 2018). According to Csikszentmihalyi (1990), flow consciousness is a common, optimal cognitive state experienced during creative expression. It is a similar idea to “being in the zone”. This study examined how flow, experienced during engagement in art majors’ chosen craft, can be a protective factor to suicide risk by potentially fostering increased levels of hope, purpose in life, and resilience.

Operationalizing Creativity

Across research, the idea of the creative person has been conceptualized numerous ways. Highly creative adults are those individuals who consider themselves more creative than the average adult, but are not necessarily eminent. For example, adults who hold a creative occupation in the visual, literary, musical, and performance arts would be considered highly creative. Adults who are studying a specific creative domain would also be considered highly creative. This thesis operationalizes creativity as developmental ability at four different levels, beginning with "mini-c", which is the formation of unique and meaningful ideas. "Little-c" is the everyday creativity where the ideas formed in "mini-c" are put into action. "Pro-c" encapsulates professional creativity where creatives are paid for their work. Finally, "Big-C" describes those creative ideas and products that change specific domains (Kaufman & Beghetto, 2009). This thesis measures creative ability using the Creative Achievement Questionnaire (Carson, Peterson, & Higgins, 2005). It will measure the impact of creativity using a standard influenced by Csikszentmihalyi's (1996) definition of creativity described as, "a process by which a symbolic domain in the culture is changed" (p. 8). The symbolic domains in his definition refer to areas in the arts and sciences such as visual art and nuclear physics. Rather than changing a domain in culture, creativity will be examined in this thesis based on how it impacts the mental health of individuals. Metzl and Morrell (2008) supported the idea of using personal growth to place value on every day, or "little-c" creativity.

Research Objectives and Questions

Three research objectives were created to support the purpose of this thesis. First, determine if art majors are at a higher risk for depression and suicide than non-art majors. Second, investigate whether there is a positive relationship between creativity and flow

consciousness. Finally, ascertain if hope, purpose in life, or resilience mediate the relationship between flow and suicide risk in both groups. Research questions were informed by the literature reviewed in the following chapter. They were crafted using developmental and salutogenic lenses. The hope is that this thesis will help to answer these questions in a way that provides further understanding about the mental health of highly creative young adults, as well as the psychological benefits of "little-c" creativity.

Objective 1. Determine if art majors are at a higher risk for depression and suicide than non-art majors

Research Q1a. Is there a difference between the levels of depression among art majors and non-art majors?

Research Q1b. Is there a difference between the levels of suicide risk among art majors and non-art majors?

Research Q2a. Is there a difference between the levels of flow among art majors and non-art majors?

Research Q2b. Is there a difference between the levels of hope among art majors and non-art majors?

Research Q2c. Is there a difference between the levels of purpose in life among art majors and non-art majors?

Research Q2d. Is there a difference between the levels of resilience among art majors and non-art majors?

Objective 2. Investigate whether there is a positive relationship between creativity and flow consciousness

Research Q3a. Is there a significant relationship between creative achievement and depression in art majors and non-art majors?

Research Q3b. Is there a significant relationship between creative achievement and suicide risk in art majors and non-art majors?

Research Q3c. Is there a significant relationship between creative achievement and flow in art majors and non-art majors?

Research Q4a. Is there a significant relationship between flow and depression in art majors and non-art majors?

Research Q4b. Is there a significant relationship between flow and suicide risk in art majors and non-art majors?

Research Q4c. Is there a significant relationship between flow and hope in art majors and non-art majors?

Research Q4d. Is there a significant relationship between flow and purpose in life in art majors and non-art majors?

Research Q4e. Is there a significant relationship between flow and resilience in art majors and non-art majors?

Objective 3. Ascertain variables that mediate the relationship between flow consciousness and suicide risk

Research Q5a. Does hope significantly mediate the relationship between flow and suicide risk in art majors and non-art majors?

Research Q5b. Does resilience significantly mediate the relationship between flow and suicide risk in art majors and non-art majors?

Research Q5c. Does purpose in life significantly mediate the relationship between flow and suicide risk in art majors and non-art majors?

Chapter 2: Literature Review

Suicidality Among Creative Adults

The term suicide is defined as an intentional death due to self-injurious behavior (Suicide, 2017). Suicide is a sensitive topic that impacts everyone at varying levels either directly or indirectly. For some people, suicide affects them personally, and for others, suicide may only be a societal concern. According to the Centers for Disease Control and Prevention (2016), in 2016 13.42 out of every 100,000 people completed suicide in the United States of America. In addition, for every completed suicide, 25 attempts were made. Unfortunately, due to the stigma associated with suicide, data tends to be under-reported.

Narrowing the scope of these numbers across time to examine suicide rates among highly creative adults can be challenging as there have been few studies reporting on this topic. Most of the research has pulled data from eminent creative adult populations.

In a striking study conducted by Stack (1996), the author found that professional artists (defined using standard federal occupational codes which include visual, performance, musical, and literary careers) had a 125% higher risk of suicide than nonartists when gender and sociodemographic variables were controlled. The percentage increased to 270% when those variables were included. Using data from the U.S. Bureau of Census, Stacks explained that in 1991, 33 out of 100,000 deaths of artists were by suicide, which was almost three times the national average of the general population.

Preti, De Biasi, and Miotto (2001) discovered in their sample of 4,564 eminent artists who died throughout the nineteenth and twentieth centuries, 63 deaths were by suicide. Of these 63 suicides, 53 were literary artists, 6 were visual artists, and 4 were musicians. Preti and Miotto (1999) examined suicide risk among eminent architects, painters, sculptors, writers, poets, and

playwrights who died between the 1800s and 1900s. Out of 3,093 deaths, 59 were suicides, which was consistent with ratios reported in previous studies of suicide rates among eminent artists. Schildkraut, Hirshfeld, and Murphy (1994) studied fifteen eminent Abstract Expressionists and found high rates of mental illness (depressive disorders and alcoholism) as well as suicide. Specifically, two out of the fifteen painters completed suicide, at least six were diagnosed with a depressive disorder, and at least five suffered from alcoholism. The researchers erred conservatively due to the review of published biographies, and archival poems and letters when collecting information for this article. Therefore, more painters may have experienced mental illness than was recorded.

The literature suggests that writers, particularly poets, tend to have the highest risk for suicide out of all creative occupations. Of all the creative professions, literary artists have one of the least expensive mediums, as they use paper, a writing utensil, and a computer. It is also a profession that tends toward isolation. Low monetary investment in materials and seclusion can be risk factors. Comparatively, painters and architects tend to have lower suicide rates as they require social interaction and financial resources to produce work (Preti & Miotto, 1999). Similarly, Jamison (1993) studied suicide rates of British poets of the 1900s and found them to be significantly higher than the general population. As for female writers specifically, Ludwig (1994) found that 15% reported attempting suicide during their lifetime, while only 3% of female nonwriters reported attempting suicide during their lifetime.

Overall, the literature reveals significantly high suicide rates among those in eminent creative occupations. These findings cannot be generalized to noneminent creatives, but further research including this population may lead to more generalizable results.

Suicidality Among Creative College Students

According to the Centers for Disease Control and Prevention (2016) there has been a steady increase in the suicide rates among people ages 18 to 24 years old—the majority age range of college students—from the year 2000 (11.6/100,000) to 2016 (15.0/100,000). Little research has been conducted on suicide risk among highly creative college students. Though, what has been found provides an empirically reliable connection between this population and suicide (Webb, Meckstroth, & Tolan, 1989). Highly creative college students are significantly more open and less judgmental to the idea of suicide than their general peers (Domino, 1988). Some researchers hypothesize the creative personality trait of openness to experience may be an explanation to this fact (Drapeau & DeBrule, 2011).

Drapeau and DeBrule (2011) conducted a study examining commonalities between creativity and suicide among college students. The most frequent similarities found among both highly creative students and students at risk for suicide included hypomania, impulsivity, psychosis, and psychoticism. As with eminent adults, these characteristics speak to the clear connection held between creativity and suicide risk. How they impact one another, as in the relationship between creativity and suicide risk is another question. Drapeau and DeBrule (2013) went on to further their 2011 findings and conducted a more recent study of 90 undergraduate students from an introductory level psychology course. They found a significant, positive relationship between suicidal ideation and creativity. Creativity was operationalized through measurements of divergent thinking and creative achievement. Out of the 10 creative domains assessed in this study, the researchers discovered those students who endorsed creative achievement in visual arts, creative writing, theater/film, and dance had the highest levels of

suicide risk. Students with high creative achievement in architectural design had the greatest risk for suicide among all the domains.

Psychopathology as a Risk Factor

With research demonstrating an obvious presence of abnormally high suicide rates among eminent creative adults and highly creative college students, it begs the question, why? To examine all of the variables that could contribute to this phenomenon would be impossible as researchers will never be able to know the true motivations and causes of those creatives that took their lives. For the sake of this review, a couple of the most common explanations will be discussed. One theme that continues to emerge from the literature addresses the presence of psychopathology among artists. The literature suggests a bidirectional relationship between artists and mental illness. Artists with a predisposition to mental illness can be drawn to a creative career, and an artist's career can lead them to experience mental illness (Runco, 1998; Stack, 1996).

Mental disorder, also known as psychopathology, and creativity have a long, complex history. Research has demonstrated that overall, eminent creatives have higher prevalence rates of mental illness than the general population. Some rates have been found to be as high as 56% (Juda, 1949; Ludwig, 1994). Schizophrenia, depression, mood disorders, bipolar disorders, and alcoholism are among the most common pathological disorders experienced by highly creative adults (Andreasen, 1987; Juda, 1949; Missett, 2013; Post, 1996). In a study examining 47 British writers, Jamison (1989) found significantly higher rates of mental illness, particularly affective disorders, when compared to the general population. She also found the highest rates of bipolar disorder among poets when comparing the various types of writers in her sample.

Across the professional artistic domains, writers tend to be at the greatest risk for pathological disorder. This finding parallels data on writers and suicide rates. In a study by Kaufman (2001), the author discovered that female writers, specifically eminent female poets, were significantly more likely to suffer from mental illness when compared to eminent females in other careers. Consistent themes of self-destructive acts and depression were also revealed during the review of 80 contemporary eminent women writers (Piirto, 1998). When compared to a matched control group, Andreasen (1987) discovered 30 writers from the *Iowa Writers Workshop* had significantly higher rates of mental illness, specifically affective disorders, bipolar disorders, and alcoholism. Concerning ability level across all the domains, eminent creatives are more likely to suffer from mental illness than noneminent creatives (Kaufman, 2001a; Ludwig, 1995).

There may be abundant evidence supporting the notion that eminent creatives tend to present with higher rates of psychopathology than the general population, but the literature is not conclusive. Contrary to the previous research findings mentioned above, a Swedish study found that people within creative professions did not suffer from schizophrenia, schizoaffective disorder, unipolar depression, anxiety disorders, alcohol abuse, drug abuse, autism, attention deficit hyperactivity disorder, anorexia nervosa, nor completed suicide more often than the controls. The study did find an increase in bipolar disorder among people within creative professions, especially authors. When comparing psychopathology across creative careers, authors were more likely to be diagnosed with schizophrenia, bipolar disorder, unipolar depression, anxiety disorders, alcohol abuse, drug abuse, and to commit suicide. When analyzing suicide among authors, the researchers controlled for diagnosed pathology and still found a

greater likelihood for suicide risk among authors when compared to controls (Kyaga, Landén, Boman, Hultman, Långström, & Lichtenstein, 2013).

To counter the notion that suicidal creatives come into their careers with psychopathology, researchers suggest that the stress of creative careers resulting from continual rejection of personal work, and low socioeconomic status can manifest suicidal behaviors (Preti & Miotto, 1999; Stack, 1996). In a study examining premature mortality in eminent creatives from various disciplines, Cassandro (1998) suggests why there may be a high prevalence of mental illness within artistic occupations by stating, "...the arts not only are found to be inviting, but may also hold the promise of increased creative potential to those individuals prone to mental illness" (p. 823).

Runco (1998) explains in his article about Sylvia Plath, that her substantial, personal, psychological investment in her work (which was demanded by the field), combined with the large amount of writing she was producing, and the stress of the quantity and quality of the criticism that came with being a professional poet, manifested her depression and suicide risk. It can be interpreted that Plath experienced significant anxiety from the production of her craft rather than a therapeutic catharsis. Runco goes on to explain that it is possible at the time of her suicide, Plath no longer felt writing was a safe place for disclosure of her most intimate self, and was consequently suppressing her emotional conflicts.

Creativity as a Protective Factor

Positive psychology—the study of what is right with people—is a lens by which to examine how the act of creative expression, the very essence of a creative person, can protect their well-being. Multidisciplinary research has demonstrated numerous benefits of creative expression. From mental, to physical, to spiritual, to social wellness, being creative can help

people experience optimal human functioning. Consciously and subconsciously it can heal them from the past, sustain them in the present, and protect them from the future.

Creativity is a construct commonly represented within positive psychology. Across the literature it has been operationalized a number of ways using systems, personality, cognitive, intelligence, biological, developmental, and social theories. In its most simple form, creativity can be described as three different things acting both simultaneously and independently of one another. These three characteristics include, an active process, a resulting product, and a character trait. At this time, there is not a single agreed upon definition of creativity. Nevertheless, there are a few broad notions surrounding creativity. A creative process is the act of making something new. A creative product is the new entity, and the set of personality traits that describe creative people tend to be both complex and dialectical. Creatives can freely move between the spectrum of these traits when needed. For example, they can be energetic and restful, smart and naive, playful and disciplined, imaginative and realistic, extroverted and introverted, humble and proud, passionate and objective, feel both severe pain and overwhelming enjoyment, and exhibit androgynous features (Csikszentmihalyi, 1996; Kerr, 2009).

Using the “Four C Model of Creativity” by Kaufman and Beghetto (2009), has helped scholars within various fields conceptualize creativity. This model views creativity as a developmental process. Starting with “mini-c” creativity, this is the learning process that includes personally meaningful and unique ideas. Next is “little-c” creativity, which is the inherent, everyday creative ability that all people possess. The third level, “pro-c” creativity, is the creativity displayed by professionals in creative careers. Finally, “Big-C” creativity, is the type held by creative geniuses that changes domains. “Big-C” creativity is the type found in most literature surrounding mental illness and suicide.

Metzl and Morrell (2008) argue for the significance of “mini-c” creativity and “little-c” creativity as agents of change within personal and relational growth. They explain that ordinary creativity encourages insightful problem solving. By practicing this skill, creatives can cultivate positive ways of thinking and acting outside of their creative activity that contributes to their well-being. If creatives are practicing their craft in a way that increases their well-being, then it may be suggested that they are decreasing their future risk for suicide, as well-being and suicide risk have a reciprocal relationship (Bates & Bowles, 2011).

Fortunately, research has uncovered much evidence that supports numerous benefits of creativity as a process. According to Kerr and McKay (2013), creatives are drawn toward artistic careers that encourage creative expression because the careers allow them to express their many talents, needs, activity levels, values, and interests. Mraz and Runco (1994) found that nonclinical college students who had greater ability to use divergent thinking (which is positively associated with creativity) had lower risk for suicidal ideation. These students were able to think of more solutions to problems, which is a protective factor to suicide. Therefore, it can be speculated that creatives who have the ability to use divergent thinking in their craft may be able to use their creative problem-solving skills as adaptive coping mechanisms to protect themselves from risk of suicide. In addition to differences between creative and uncreative students in Mraz and Runco’s (1994) study, variance in suicide risk was also present between artistic careers.

A significant study in the literature pertaining to professional, eminent musicians conducted by Preti, De Biasi, and Miotto (2001) gives four speculations as to why they tend to have lower suicide rates than eminent artists in the literary and visual fields. One reason a professional music career can be a protective factor to suicide is that is requires financial stability. It can cost substantial amounts of money to maintain a musical instrument. Therefore,

professional musicians must work to earn a living that can sustain their craft. Suicide may not impact eminent musicians as much as other creative professions because the demanding technical skill that is required of the brain to read music, and physically master an instrument protects the musician from the vulnerabilities of severe mental illnesses. Third, eminent musicians are required to engage in human interaction in various ways, which can be another protective factor. Finally, the researchers suggest that participating in the musical arts gives musicians a natural realm to work through emotional conflict that is not shielded by literary or visual symbols.

Flow Consciousness

Csikszentmihalyi (1996) identified a psychological consciousness that can occur during creative expression referred to as flow. Flow is not a requirement of creativity. One can be creative without experiencing flow consciousness. With that said, research on flow over the last twenty years has supported the notion that experiencing flow positively impacts well-being.

Flow is a cognitive state composed of nine subjective characteristics: (a) merging of action and awareness; (b) loss of self-consciousness; (c) a sense of control; (d) altered sense of time; (e) an autotelic (intrinsically motivating) activity; (f) set of goals; (g) immediate feedback; (h) balance between perceived challenges and skills; and (i) exclusion of distractions. During flow, one is intensely focused on the intrinsically motivating activity at hand and they lose awareness of their surroundings as well as their self-consciousness. Similarly, flow has been compared to the cognitive process of absorption, which allows for effortless experiences during times of creativity (Manmiller, Kumar, & Pekala, 2005). This focused state of mind contributes to well-being as it blocks out psychic entropy, the brain's default thought setting that produces chaotic anxiety about fears and desires. Absent of psychic entropy, creatives are able to

confidently make their work without anxiety of losing control. Also, time seems to pass by quickly because attention is focused exclusively on the activity at hand, effortlessly keeping distractions out of consciousness, which again helps to eliminate psychic entropy.

These characteristics of flow contribute to well-being as they are enjoyable and rewarding. What makes an activity/experience autotelic and continually repeated is the sheer enjoyment that comes from participating in the activity itself. An autotelic activity typically provides a clear set of goals which provides direction, purpose, and structure to help channel attention. Flow occurs during an autotelic activity when one receives immediate feedback which gives direction to one's development in a given activity. This clear direction promotes a sense of competence and control. Finally, a matched balance between perceived challenges and skills during flow consciousness provides optimal human functioning. However, if skill level exceeds challenge, boredom can subsume. Anxiety arises if challenges are too difficult and are not appropriately matched to skill level (Csikszentmihalyi, 2009).

This leads to the question, how? How can being in flow consciousness during creative expression enhance well-being and act as a protective factor to mental health adversity? Research has found that flow has the potential to foster three important constructs that are also protective factors to suicide risk: hope, purpose in life, and resilience. Unfortunately, no research has been exclusively conducted on how flow during creativity fosters hope, purpose in life, and/or resilience. Therefore, when examining hope, purpose in life, and resilience, this review reports data from the literature about the impact of flow and the impact of creativity separately.

Hope Found in Creativity and Flow

Since the early 1900s, many definitions of hope have been created throughout the literature. Numerous research studies the Beck Hopelessness Scale (Beck, 1986) and Snyder's

Hope Scale (Davidson, Wingate, Rasmussen, & Slish, 2009; Kermani, Khodapanahi, & Heidari, 2011), and have validated that hope can be a buffer to suicide risk. This study conceptualizes hope using Snyder's theory of hope. Snyder constructed his hope theory using a cognitive and emotional framework. He explained that hope is a motivational state built from goals, pathways, and agency. Goals are the main component in hope. They need to be both important and attainable. Pathways thinking, also known as "waypower," involves finding routes to achieve goals. Finally, agency, also known as "willpower," is the ability to stay focused and motivated to reach goals even in the face of obstacles (Edwards, 2009).

Examining flow and hope, elements of flow consciousness align with hope. When in flow consciousness, one has clear goals, which is the first requirement to having hope. Secondly, when experiencing flow during an activity, there is a balance between challenge and skills. One also feels as though they have confident control over their actions and next steps during the activity. These ideas reflect the notion of having pathways to achieve goals in order to be hopeful. Next, flow encourages one to have intense focus during their activity. Also, the creative activity is autotelic meaning one has the motivation to participate in the activity for the activity's sake. Having focus and motivation to achieve goals are the final pieces to obtaining hope. Therefore, it can be suggested that flow consciousness may support the development of hope.

In terms of how creativity can impact hope, there have been a handful of studies. Kennett (2000) conducted a study where terminally ill patients in a hospice day centre participated in individual visual art and creative writing activities that were put together into a series of collaborative works of art. Through in-depth, semi-structured interviews with 50 participants about their creative experiences, hope presented itself as the overarching theme. Creative expression promoted hopefulness in the participants by: (a) broadening their beliefs of what was

possible; (b) giving the present moment life and inducing a sense of faith in the future; (c) giving them control over elements of their activities and setting attainable goals; and (d) stimulating feelings of interconnectedness with one another. Various aspects of flow consciousness are mentioned throughout this study such as a set of goals, a sense of control, and immediate feedback from the creative activity facilitators. If measured in Kennett's study, it could be speculated that some participants might have endorsed experiencing flow consciousness.

Characteristics such as increased self-esteem and confidence were reported by participants in an art therapy program hosted by a community mental health organization (Heenan, 2006). Although flow was not directly measured in this study, previous research has supported the notion that being in flow consciousness increases self-esteem and confidence as one overcomes challenges while engaging in an autotelic activity in order to accomplish goals (Csikszentmihalyi, 1988). Participants mentioned additional ways that creating art cultivated feelings of hope for the future. They reported that the process itself was cathartic and helped to break down communication barriers about sensitive topics such as mental health stigma. It also gave them a place to visualize or process their thoughts, which has been reported to foster hopefulness (Heenan, 2006).

Mayo (2016) argues mental health treatments that cultivate hopefulness can, "1) promote mastery, 2) provide meaning, 3) reduce anticipated isolation or alienation, and 4) increase one's sense of dignity and self-worth to face the future positively" (p. 79). In flow consciousness during engagement in an autotelic activity, one experiences a balance between perceived challenges and skills which promotes mastery. Through this balance, goals are accomplished, which strengthens dignity and self-worth. The activity also brings order to psychic entropy which can cultivate meaning and reduce anxiety.

Overall, research has supported the idea that creative expression, especially through the creative arts therapies (Kennett, 2000; Silverman, 2016), can foster hopefulness by various means. The previously mentioned research is comprised of phenomenological approaches and case studies. More research needs to be conducted to support the notion that flow consciousness—one element of the creative process—can cultivate hope. At this time only speculation can be stated about this relationship.

Purpose in Life Found in Creativity and Flow

Across centuries, philosophers and scholars have studied the idea of purpose in life. Generally, the terms *meaning* and *purpose* are used interchangeably, though they have different connotations. *Meaning* pertains to those things (i.e. experiences, objects, people, etc.) in life that give it reason and help justify existence, while *purpose* refers to at least one substantial goal that contributes to a person's search for meaning and reaches beyond the self by making a difference in the world (Damon, Menon, & Cotton Bronk, 2003). Research has found that having and pursuing meaning in life can protect against suicide risk (Kleiman & Beaver, 2013). This study will use Victor Frankl's ideas to conceptualize purpose in life and use the terms *meaning* and *purpose* synonymously. Frankl is the creator of logotherapy, which is a psychological theory stating universally, humans possess an innate drive to find meaning and purpose in life. This desire helps fuel the motivation to live. Logotherapy posits there are three types of values that people can act on to find meaning. First, people can find meaning in creating or producing something. Second, experiencing something such as love can produce meaning. Finally, meaning can come from holding certain attitudes in various situations (Pisca & Feldman, 2009).

Examining Frankl's three values, it seems they align with the constructs of both flow consciousness and creativity. The first value, is obviously stated, engaging in creativity can

cultivate purpose in life. Flow and creative expression are both significant psychological and physical experiences, which aligns with Frankl's second value. One of the most important facts from this review is that flow and creativity produce optimal life experiences. This supports the third set of values, attitudinal. A natural consequence of engaging in positive life events is a positive attitude.

Csikszentmihalyi (1990) explained that life may not have inherent meaning, but by engaging in activities that create a sense of flow, life can be given meaning. Meaning is created when people have goals or challenges compelling enough to focus their attention and integrate their actions in a way that orders their natural psychic entropy within the mind. Creative activities that "provide clear objectives, clear rules for actions, and a way to concentrate and become involved...can serve to give meaning to a person's life" (p. 215). Overall, very little research has been conducted about the relationship between flow, creativity, and purpose in life. What has been found is fragmented, but overwhelmingly validates Csikszentmihalyi's statement. For example, through interviews about their art-making experience, Fisher and Specht (2000) found that older adults, age 60-93 years old, who participated in weekly creative art activities cultivated a sense of purpose, and further developed their problem-solving skills. Specifically, feeling as though they had goals, had something to look forward to, made a contribution, and were able to leave a part of themselves behind, helped participants derive purpose in life from their creative activities. Findings from the interviews support the notion that creative expression can help people foster meaning, hopefulness, and happiness. Similarly, Krawczynski and Olszewski (2000) used a multimodal program that incorporated creative stimulation with older adults and found significantly increased purpose in life and decreased depression scores using

empirically validated measurement scales. Furthermore, these changes were sustained six months post-intervention.

Since the inception of positive psychology in 1998, it has been integrated into various fields and continues to leave its mark in new places. Lomas (2016) examines the topic of positive art. Influenced by positive psychology, positive art is the study of how art-making and art appreciation contribute to well-being. Through review of the literature, five main categories emerged. Positive outcomes from engaging in creative visual art, music, literature, and drama activities include: (a) sense-making (finding meaning in life); (b) enriching experience (feeling emotions); (c) aesthetic appreciation (beauty of the work brings joy); (d) entertainment; and (e) bonding with others. Through this review, it is clear that people can organically flourish through creative engagement in the arts at least five powerful ways.

In terms of suicide risk, Armstrong and Manion, (2015) found an inverse relationship between meaningful youth engagement and suicidal ideation. The authors used a combination of engagement theories, including flow, to define meaningful engagement as, “an activity which promotes success, challenge, would be hard to give up, is believed to be important, and is experienced as fun” (p. 21). The more adolescents prescribed personal meaning to their extracurricular activities, the less likely they were to report suicidal thoughts. It may be prudent for future research to examine meaningful youth engagement within specific extracurricular activities, particularly creative ones.

Being creative and experiencing flow consciousness have both been empirically supported to foster a sense of purpose in life. Since having purpose in life is one of the best protective factors to suicide risk, it can be suggested that engaging in creative activities that produce flow consciousness are important in helping reduce suicide risk.

Resilience Found in Creativity and Flow

Resilience is another construct within the positive psychology movement. Also known as "mental toughness" (Piirto, 2004, p. 353), resilience is the idea that one is able to flourish during or after exposure to adversity. Research has demonstrated that resilience can be a protective factor to suicide risk (Roy, Carli, & Sarchiapone, 2011). Over the last two decades empirical exploration about resilience has dramatically increased and expanded as it has been applied to numerous disciplines. One of those domains that has gained attention recently is creativity.

According to Metzl and Morrell (2008) creativity and resilience are related in a few different ways. First, creative personalities and resilient personalities can share similar traits. Traits that may be inherently shared between creative and resilient personalities include problem solving--similar to divergent thinking (Torrance, 1995), self-awareness, initiative, expressiveness, spontaneity, flexibility, ingenuity, adaptability, originality (Barron, 1969; Kirton, 1994), and dualism, which is the ability to readily move from one extreme of a trait to the other paradoxical extreme (Csikszentmihalyi, 1996). Humor, aggression, the ability to find alternative solutions to set goals, and tolerating ambiguity are also characteristics shared between creative and resilient personalities.

Second, the act of creative expression can foster resilience as the creative process encourages people to practice those shared traits or skills. Creativity and resilience have a bidirectional relationship and both can impact one another. The more creative one is, the more likely they are to possess resilience skills, and the less resilient one is, the less likely they are to have creative skills. Therefore, both constructs of creativity and resilience can be examined as a product and/or a process (Metzl & Morrell, 2008). For example, to be creative, one has to be able to create something novel, which involves manipulating existing materials (Barron, 1969).

Meneely and Portillo (2005) devised the notion of *creative adaptation,* which requires one to be able to think flexibly by adapting one's responses to a given domain while changing a given domain. Creative adaptation, similar to the notions of resourcefulness and practical creativity, can apply to domains both inside and outside of creativity. Therefore, this ability to be flexible can mirror a similar ability found in resilient personalities. Resilient people are able to use positive adaptation skills to reshape their responses to adverse experiences (Masten & Powell, 2003). Through this lens, creative adaptation is theoretically similar to adaptation skills found through resilience.

A more specific example of how creative expression can foster resilience comes from the construct of flow. Since flow is a state of consciousness, it is only one aspect of the creative process and it is not a requirement. Creative product can be made without experiencing flow, but by doing so one may be missing out on valuable life skills that cultivate resilience. Informed by the idea that flow is an optimal state of consciousness that fosters complexity of the self, Parr, Montgomery, and DeBell (1998) described various ways experiencing flow that can help students build resilience. The first characteristic of flow the authors explain is goal setting. Students who have clear goals develop "resilience characteristics such as initiative, proactivity, acceptance of responsibility, and commitment" (p. 29). Having goals and choices can help students to feel in control. Control allows students to display the "resilient characteristics of proactivity, commitment, a willingness to take risks, and initiative" (p. 29). When students feel they have control over their choices, they develop intrinsic motivation, which is a key facet of flow. Being centered, or focusing attention in the present moment, is another element of flow, which encourages the resilient characteristics of "insight, creativity, openness to new ideas, novelty seeking, and attentiveness" (p. 29). Feedback is an important feature of flow that helps

students to build trust, maintain commitments, and develop optimism, all qualities of resilience. The final element of Flow theory discussed in this article pertains to developing the self through appropriate levels of challenge. When the self is able to become more complex, students also grow the resilience skills of "self-confidence, independence, optimistic outlook, and proactivity" (p. 30). Additionally, by engaging in flow (say through a creative activity), it allows the mind to focus in such a way that provides order to its natural state of psychic entropy, which fosters resilience or "mental toughness" to bounce back from adversity.

Overall, past literature has found that eminent artists and college students with high creative achievements tend to be at a greater risk for suicide than the general population. Factors that seem to contribute to this risk include psychopathology, and stress inducing occupational demands. Very little research has been conducted in this area as these conclusions come from four to five published articles. Studies have also found that creativity can also be a protective factor to poor mental health outcomes. Researchers have been assigned the task of continuing to differentiate the various, specific aspects of creativity that either positively or negatively impact mental health. Flow, a specific cognitive state experienced during creative expression, leads to improved well-being when practiced. Past literature has found that hope, purpose in life, and resilience are all variables that can be fostered through flow, and protect against suicide risk. This study was created to compare and predict the levels of suicide risk, depression, creative achievement, flow, hope, purpose in life, and resilience in college students (art majors vs. non-art majors) using quantitative data. The next chapter will deconstruct the methodology used in this study to gather and analyze data. Hypotheses to each research questions are also listed.

Chapter 3: Method

Participants

Data collection began the first week of December 2017, and ended the first week of February 2018. A total of 544 subjects were recruited through social media, email, SONA, and word-of-mouth. Participants that indicated an undecided major or no major were removed from the data set due to the inability to categorize them into art major or non-art major groups. This left 474 responses used in data analyses. Participating students represented both art majors (*n* = 144, 30.4%) and non-art majors (*n* = 330, 69.6%). There were 247 females (52.1%), 220 males (46.4%), and 7 participants (1.5%) whom indicated their gender as "other". The majority of participants were 18-24 years old (344, 72.6%), followed by 25-34 years old (108, 22.8%), 35-44 years old (16, 3.4%), 45-54 years old (4, 0.8%), and finally, 55-64 years old (2, 0.4%). As for the representation of ethnicity, there was little diversity. The majority of participants were White (369, 77.8%). The other 22.2% of the sample included Asian/Pacific Islander (39, 8.2%), Other (30, 6.3%), Hispanic or Latino (23, 4.9%), Black or African American (10, 2.1%), and Native American or American Indian (3, 0.6%). To complete the demographic information, students indicated their academic status as either bachelor degree (341, 71.9%), master degree (72, 15.2%), doctoral degree (38, 8%), or non-degree seeking (23, 4.9%). Geographically, participants were represented from various countries across the world. Most survey responses were collected from the Midwest region of the United States of America.

Measures

Students took a battery of measurements through an online, Qualtrics survey. This battery consisted of a demographic form, the Patient Health Questionnaire (Kroenke & Spitzer, 2002), the Suicidal Affect-Behavior-Cognition Scale (Harris et al., 2015), the Creative Achievement

Questionnaire (Carson, Peterson, & Higgins, 2005), the Flow Short Scale (Rheinberg et al., 2007), the Hope Scale (Snyder et al., 1991), the Purpose in Life Test (Crumbaugh & Maholick, 1964), and the Brief Resilience Scale (Smith et al., 2008). Correlation coefficients are provided for each measure. The typical effect size of the correlation coefficients in social science research ranges from weak .10, to moderate .30, to strong .50+ (Cohen, 1988).

Demographic Form.

Students were asked to indicate their age, gender, ethnicity, academic status, and major (including Undecided).

Patient Health Questionnaire (PHQ-9).

A nine question self-report assessment used to make depression diagnosis based off *DSM-IV* criteria, and measure depression severity (Kroenke & Spitzer, 2002). A score of 5 represented mild depression, 10 indicated moderate depression, 15 represented moderately severe, and 20 indicated severe depression levels. Across studies, Cronbach's alpha measuring the internal reliability of the PHQ-9 ranged from (α = .86-.89), which is high for social science research. Rate-of-Change analysis revealed an area under the curve (AUC) of .95. A perfect AUC score is 1.0, therefore, a .95 indicates the PHQ-9 can discriminate well between persons with major depression and persons without (Kroenke, Spitzer, & Williams, 2001).

Suicidal Affect-Behavior-Cognition Scale.

A 6-item self-report measure of suicide risk. The Suicidal Affect-Behavior-Cognition Scale uses the suicidal barometer model to display current levels of distress and predict future risk. The scale has high internal reliability (α = .86-.93, split-half = .90-.94), and predictive of future suicide risk (r = .73) (Harris et al., 2015).

Creative Achievement Questionnaire.

A 96-item, self-report checklist that measures creative achievement across 10 core domains. These domains include visual art, music, creative writing, dance, drama, architecture, humor, scientific discovery, invention, and culinary. Test-retest reliability design produced a high score of .81 ($p < .001$). A zero-order correlation score came in at .59 ($p < .001$) indicating a strong, positive correlation suggesting that past creative behavior is a good predictor of future creative production ability (Carson, Peterson, & Higgins, 2005).

Flow Short Scale.

A 10-item assessment that measures all facets of flow consciousness. Three additional items measure perceived importance through items that ask about perceived difficulty, skill, and demand of the activity. The first 10 questions are placed on a 7-point scale, while the three additional items use a 9-point scale (Rheinberg et al., 2007). Internal consistencies for the flow score in this scale have been reported at ($\alpha = .92$), and at ($\alpha = .76$) for the three importance questions (Engeser & Rheinberg, 2008).

Hope Scale.

The Hope Scale contains eight hope questions and four filler items. Four agency items pertain to one's motivation to achieve goals. The four pathways questions ask about one's ability to overcome obstacles and find ways to achieve one's goals. Studies indicate the Hope Scale is a reliable instrument to measure hope as Cronbach's alphas for the total scale have ranged from ($\alpha = .74$-$.84$) (Snyder et al., 1991).

Purpose in Life Test.

A 20-item, self-report assessment, created to measure an individual's experience of meaning and purpose in life using Frankl's (Frankl, 1963) values in logotherapy of creativity, significant physical and psychological experience, and attitude (Crumbaugh & Maholick, 1964; Crumbaugh, 1968). The measurement uses a 7-point Likert scale for each item. The scale comes to a final score which can range from 20 (low purpose in life) to 140 (high purpose in life) (Crumbaugh & Maholick, 1964). Split-half reliability of .85 (Crumbaugh, 1968) and test-retest reliability of .83 (Meier & Edwards, 1974) have been reported indicating good reliability. Support for convergent and discriminant validity have been noted as well (Seeman, 1991).

Brief Resilience Scale.

The Brief Resilience Scale is used to measure the ability to bounce back from stress. It is a 6-item measure that uses reverse coding for 3 out of the 6 questions. A 5-point Likert scale from "strongly disagree" to "strongly agree" accompanies each question. High alpha levels for internal consistency (α = .80-.91) and test-retest reliability (α = .62-.69) indicate strong ability to accurately measure resilience (Smith et al., 2008).

Procedures

Before data collection, IRB approval was obtained through the University of Kansas. Recruitment was conducted through email, personal communication, social media, and SONA via the University of Kansas (KU). One participation credit was earned for those KU students who use SONA to complete the survey. Informed consent was collected through the online, Qualtrics survey prior to starting the battery of measurements. The entire battery took about 15 minutes to complete. Participants that indicated they would like to receive further information

about counseling services available through their specific university (*N* = 37) were sent an email that validated their experience, outlined available options, and included hypertext links.

Hypotheses

The purpose of this study is to determine how experiencing flow consciousness through creative expression could be a protective factor to suicide risk in college students. Past studies have found positive correlations between creative achievement with suicide risk (Drapeau, & DeBrule, 2013; Stack, 1996). Research has also discovered that creativity, flow, hope, purpose in life, and resiliency can have positive effects on mental health outcomes. To date, no research has examined flow as an aspect of creativity that can protect against suicide risk in creative populations. The variables of hope, purpose in life, and resiliency were chosen based off their presence in the flow literature, and their impact to suicide risk. Information from this study is important because it can help facilitate further understanding of highly creative college students' lived experiences; provide understanding of the beneficial psychological process of flow consciousness during creative expression; and encourage exploration into specific and appropriate resources that can help protect creative populations from suicide risk. Hypotheses subscripts align to research question subscripts.

Hypothesis 1a. Art majors will have significantly different scores on the Patient Health Questionnaire (PHQ-9) than non-art majors.

Hypothesis 1b. Art majors will have significantly different scores on the Suicide Affect-Behavior-Cognition Scale than non-art majors.

Hypothesis 2a. Art majors and non-art majors will have significantly different scores on the Flow Short Scale.

Hypothesis 2b. Art majors and non-art majors will have significantly different scores on the Hope Scale.

Hypothesis 2c. Art majors and non-art majors will have significantly different scores on the Purpose in Life Test.

Hypothesis 2d. Art majors and non-art majors will have significantly different scores on the Brief Resilience Scale.

Hypothesis 3a. There will be a significant, positive relationship between creative achievement and depression in art majors and non-art majors.

Hypothesis 3b. There will be a significant, positive relationship between creative achievement and suicide risk in art majors and non-art majors.

Hypothesis 3c. There will be a significant, positive relationship between creative achievement and flow in art majors and non-art majors.

Hypothesis 4a. There will be a significant, negative relationship between flow and depression in art majors and non-art majors.

Hypothesis 4b. There will be a significant, negative relationship between flow and suicide risk in art majors and non-art majors.

Hypothesis 4c. There will be a significant, positive relationship between flow and hope in art majors and non-art majors.

Hypothesis 4d. There will be a significant, positive relationship between flow and purpose in life in art majors and non-art majors.

Hypothesis 4e. There will be a significant, positive relationship between flow and resilience in art majors and non-art majors.

Hypothesis 5a. Hope will significantly mediate the relationship between flow and suicide risk in both art majors and non-art majors.

Hypothesis 5b. Resilience will significantly mediate the relationship between flow and suicide risk in both art majors and non-art majors.

Hypothesis 5c. Purpose in life will significantly mediate the relationship between flow and suicide risk in both art majors and non-art majors.

Chapter 4: Results

Before running the analyses, data were coded and cleaned. Participants self-reported answers to the demographic question, “What is your major?”. Data from this question was coded by splitting participant answers into three groups. The first group coded as “0” were answers that indicated an undecided major, or no major at all. The second group coded as “1” was labeled as art majors. Following Stack’s (1996) occupational classification, the primary researcher indicated participants as art majors if their response to the question fell into the broad categories of visual art, music, writing, or performance. The third group coded as “2” were all other majors, labeled as non-art majors. The primary researcher used an internet search to determine placement of unfamiliar majors listed. Participant responses from the first group were removed from further analyses due to inability to classify whether participants were art majors or non-art majors. Only answers from art majors and non-art majors were included in this study.

This thesis examined psychological effects of creativity in highly creative college students compared to their general population peers. Therefore, to determine if art majors were significantly more creative than non-art majors, creativity was operationalized as creative achievement. In this sample, art majors (n = 144) were significantly more creative (M = 18.7, SD = 13.3) than non-art majors (n = 330) (M = 14.4, SD = 12.7), $t(472) = -3.310$, $p < .001$. See Table 1 for descriptive statistics.

Test of Statistical Assumptions

For all variables, Levene’s Test for Equality of Variances was $p > .05$, therefore homogeneity of variances was assumed. Violations of assumptions for regression were examined before analyses were conducted. Outliers emerged in one out of the seven variables, creative achievement. According to Carson, Peterson, and Higgins, (2005), creative achievement is not

normally distributed within the general population. Analyses were run with and without these cases. No significant differences appeared, therefore, data analyses included outliers. Multivariate normality for all variables were checked by creating probability-probability (P-P) plots in SPSS and looking at how closely the distribution came to the perfectly diagonal line. All variables were confirmed to have multivariate normality. Also, no correlations came close to zero among the predictors, therefore linearity was assumed. Finally, collinearity diagnostic tests of Tolerance were always greater than .1, and VIF results were always less than 10, which indicated no evidence of multicollinearity among the predictors.

Hypothesis Testing

Composite scores for each variable in this study were created to answer the following research questions using hypothesis testing. These variables included, depression, suicide risk, creative achievement, flow consciousness, hope, purpose in life, and resilience. Descriptive statistics, bivariate correlation, linear regression, multiple linear regression, and mediation analyses were conducted.

Objective 1. Determine if art majors are at a higher risk for depression and suicide than non-art majors

Research Q1a. Is there a difference between the levels of depression among art majors and non-art majors?

Hypothesis 1a. Art majors will have significantly different scores on the Patient Health Questionnaire (PHQ-9) than non-art majors. Hypothesis 1a was not supported as there was not a significant difference between art major (M = 11.4, SD = 6.9) and non-art major (M = 11.5, SD = 7.4) scores on the PHQ-9, $t(472) = .251$, $p > .05$. See Table 1 for descriptive statistics.

Research Q1b. Is there a difference between the levels of suicide risk among art majors and non-art majors?

Hypothesis 1b. Art majors will have significantly different scores on the Suicidal Affect-Behavior-Cognition Scale than non-art majors. Hypothesis 1b was not supported as there was not a significant difference between the scores of art majors (M = 8.3, SD = 8.0) and the scores of non-art majors (M = 9.3, SD = 9.0), $t(472) = 1.081$, $p > .05$ on the Suicidal Affect-Behavior-Cognition Scale. See Table 1 for descriptive statistics.

Research Q2a. Is there a difference between the levels of flow among art majors and non-art majors?

Hypothesis 2a. Art majors and non-art majors will have significantly different scores on the Flow Short Scale. Hypothesis 2a was supported. Before participants completed the Flow Short Scale, they were asked to type their "favorite activity" relating to their major (e.g., painting, singing, writing, coding, etc.) in a provided box within the survey. Art majors (M = 51.6, SD = 11.9) engaged in flow consciousness during their favorite activity significantly more than non-art majors (M = 47.3, SD = 12.), $t(472) = -3.521$, $p < .001$. See Table 1 for descriptive statistics.

Research Q2b. Is there a difference between the levels of hope among art majors and non-art majors?

Hypothesis 2b. Art majors and non-art majors will have significantly different scores on the Hope Scale. Hypothesis 2b was not supported as there was not a significant difference in hope between art majors (M = 44.7, SD = 11.7) and non-art majors (M = 43.7, SD = 11.9), $t(472) = -.873$, $p > .05$. See Table 1 for descriptive statistics.

Research Q2c. Is there a difference between the levels of purpose in life among art majors and non-art majors?

Hypothesis 2c. Art majors and non-art majors will have significantly different scores on the Purpose in Life Test. Scores on the Purpose in Life Test did not indicate a significant difference between art majors (M = 62.6, SD = 16.1) and non-art majors (M = 60.2, SD = 15.4), $t(472) = -1.540$, $p > .05$. See Table 1 for descriptive statistics.

Research Q2d. Is there a difference between the levels of resilience among art majors and non-art majors?

Hypothesis 2d. Art majors and non-art majors will have significantly different scores on the Brief Resilience Scale. Finally, there was not a significant difference in levels of resilience between art majors (M = 17.9, SD = 7.2) and non-art majors (M = 17.4, SD = 7.6), $t(472) = -.703$, $p > .05$. See Table 1 for descriptive statistics.

Table 1

Means, Standard Deviations, and Independent Samples t-test for Art Majors and Non-art Majors

	Major				
	Art	Non-art	*t*	*df*	95% CI
Depression	11.4 (6.9)	11.5 (7.4)	.251	472	-1.23, 1.60
Suicide Risk	8.3 (8.0)	9.3 (9.0)	1.081	472	-.77, 2.66
Creative Achievement	18.7 (13.3)***	14.4 (12.7)***	-3.310	472	-6.78, -1.73
Flow	51.6 (11.9)***	47.3 (12.5)***	-3.521	472	-6.77, -1.95
Hope	44.7 (11.7)	43.7 (11.9)	-.873	472	-3.36, 1.29
Purpose in Life	62.6 (16.1)	60.2 (15.4)	-1.540	472	-5.47, .66
Resilience	17.9 (7.2)	17.4 (7.6)	-.703	472	-1.99, .94

Note. Standard deviations appear in parentheses beside means. CI = confidence interval.

***$p \leq .001$.

Objective 2. Investigate whether there is a positive relationship between creativity and flow consciousness

Research Q3a. Is there a significant relationship between creative achievement and depression in art majors and non-art majors?

Hypothesis 3a. There will be a significant, positive relationship between creative achievement and depression in art majors and non-art majors. Hypothesis 3a was not supported as there was not a significant correlation between creative achievement and depression in art majors ($r = .077$, $p > .05$). A significant, weak negative correlation was found between creative achievement and depression ($r = -.175$, $p < .001$) in non-art majors. See Table 2 for bivariate correlations.

Research Q3b. Is there a significant relationship between creative achievement and suicide risk in art majors and non-art majors?

Hypothesis 3b. There will be a significant, positive relationship between creative achievement and suicide risk in art majors and non-art majors. There was not a significant relationship between creative achievement and suicide risk in art majors ($r = .005$, $p > .05$), or non-art majors ($r = -.108$, $p > .05$). See Table 2 for bivariate correlations.

Research Q3c. Is there a significant relationship between creative achievement and flow in art majors and non-art majors?

Hypothesis 3c. There will be a significant, positive relationship between creative achievement and flow in art majors and non-art majors. Creative achievement and flow were positively correlated in both art major ($r = .245$, $p < .01$) and non-art major ($r = .174$, $p < .01$) groups. See Table 2 for bivariate correlations.

Research Q4a. Is there a significant relationship between flow and depression in art majors and non-art majors?

Hypothesis 4a. There will be a significant, negative relationship between flow and depression in art majors and non-art majors. Results of the analysis show a significant, weak, negative relationship between flow and depression (r = -.211, p < .05) in art majors. A significant, moderate, negative relationship was also present between flow and depression (r = -.348, p < .001) in non-art majors. See Table 2 for bivariate correlations.

Research Q4b. Is there a significant relationship between flow and suicide risk in art majors and non-art majors?

Hypothesis 4b. There will be a significant, negative relationship between flow and suicide risk in art majors and non-art majors. A significant, moderate, negative relationship was found between flow and suicide risk (r = -.295, p < .001) in art majors. Similarly, a significant, moderate, negative relationship was present between flow and suicide risk (r = -.290, p < .01) in non-art majors. Depression and suicide risk were both strongly correlated to one another in art majors (r = .681, p < .001) and non-art majors (r = .728, p < .001). See Table 2 for bivariate correlations.

Research Q4c. Is there a significant relationship between flow and hope in art majors and non-art majors?

Hypothesis 4c. There will be a significant, positive relationship between flow and hope in art majors and non-art majors. Hypothesis 4c is supported as there is a significant relationship between flow and hope in both groups. Correlations between flow and hope (r = .478, p < .001) in art majors and flow and hope (r = .475, p < .001) in non-art majors both resulted in moderate positive relationships. See Table 2 for bivariate correlations.

Research Q4d. Is there a significant relationship between flow and purpose in life in art majors and non-art majors?

Hypothesis 4d. There will be a significant, positive relationship between flow and purpose in life in art majors and non-art majors. Similarly, correlations between flow and purpose in life ($r = .455$, $p < .001$) in art majors, and flow and purpose in life ($r = .432$, $p < .001$) in non-art majors both resulted in positive, moderate relationships. See Table 2 for bivariate correlations.

Research Q4e. Is there a significant relationship between flow and resilience in art majors and non-art majors?

Hypothesis 4e. There will be a significant, positive relationship between flow and resilience in art majors and non-art majors. Finally, Hypothesis 4e was supported as there were significant relationships between flow and resilience ($r = .297$, $p < .001$) in art majors, and flow and resilience ($r = .318$, $p < .001$) in non-art majors. Hope and purpose were both strongly correlated to one another in art majors ($r = .806$, $p < .001$), and non-art majors ($r = .806$, $p < .001$). Hope and resilience were also strongly correlated in art majors ($r = .624$, $p < .001$), and non-art majors ($r = .579$, $p < .001$). Purpose in life and resilience had a significant, strong, positive correlation in art majors ($r = .649$, $p < .001$), and non-art majors ($r = .594$, $p < .001$). See Table 2 for bivariate correlations.

Table 2

Bivariate Correlations Among Study Variables for Art Majors and Non-art Majors

Variable	1	2	3	4	5	6	7
1. Depression	-	.681*** (.728***)	.077 (-.175***)	-.211* (-.348***)	-.580*** (-.590***)	-.714*** (-.710***)	-.635*** (-.550***)
2. Suicide Risk		-	.005 (-.108)	-.295*** (-.290**)	-.609*** (-.576***)	-.738*** (-.738***)	-.533*** (-.469***)
3. Creative Achievement			-	.245** (.174**)	.142 (.246***)	.039 (.235***)	-.001 (.188***)
4. Flow				-	.478*** (.475***)	.455*** (.432***)	.297*** (.318***)
5. Hope					-	.806*** (.806***)	.624*** (.579***)
6. Purpose in Life						-	.649*** (.594***)
7. Resilience							-

Note. Non-art major correlations appear in parentheses underneath art major correlations.
*$p < .05$. **$p < .01$. ***$p \leq .001$.

Objective 3. Ascertain variables that mediate the relationship between flow consciousness and suicide risk

Research Q5a. Does hope significantly mediate the relationship between flow and suicide risk in art majors and non-art majors?

Hypothesis 5a. Hope will significantly mediate the relationship between flow and suicide risk in both art majors and non-art majors. Starting with art majors, multiple linear regression analysis was used to investigate the hypothesis, and results indicated that a significant regression equation was found in Model 1 presented in Table 3. Hope was inserted into the pathway between flow and suicide risk, ($F(2,141) = 41.53$, $p < .001$), resulting in an R^2 of .371. Therefore, approximately 37% of the variance in suicide risk for art majors was accounted for by Model 1. As seen in Table 3, unstandardized beta scores for the direct pathway between flow and suicide risk became insignificant ($B = -.00$, $p > .05$). Using a Sobel test approach, it was confirmed hope had a statistically significant indirect effect ($B = -.42$, $p < .001$, 95% CI [-0.52, -0.31]). Suicide risk scores decreased by 0.42 points for each one point increase in hope. Similarly, for non-art majors, hope accounted for approximately 33% of the variance in suicide risk, displayed by Model 1 in Table 4 which indicates an R^2 of .33. Table 4 demonstrates the indirect pathway for hope ($B = -.43$, $p < .001$, 95% CI [-0.51, -0.35]) significantly mediated the direct pathway between flow and suicide risk, ($F(2, 327) = 81.44$, $p < .001$).

Research Q5b. Does resilience significantly mediate the relationship between flow and suicide risk in art majors and non-art majors?

Hypothesis 5b. Resilience will significantly mediate the relationship between flow and suicide risk in both art majors and non-art majors. In Model 2 represented in Table 3 for

art majors, resilience was added to the hope mediation created in Model 1, and results indicated that a significant regression equation was found ($F(3,140) = 32.33$, $p < .001$), with an R^2 of .41. Both hope and resilience combined accounted for about 41% of the variance in suicide risk for art majors. As seen in Table 3, unstandardized beta scores for the direct pathway between flow and suicide risk continued to be insignificant ($B = -0.00$, $p > .05$). Using a Sobel test, the indirect effect of resilience had a statistically significant indirect effect ($B = -.28$, $p < .01$, 95% CI [-0.42, -0.10]). Suicide risk scores decreased by 0.28 points for each one point increase in resilience. Similarly, for non-art majors, Model 2 displayed in Table 4 accounted for approximately 36% of the variance in suicide risk. Table 4 demonstrates that the indirect pathway of Model 2 ($B = -.24$, $p < .001$, 95% CI [-0.37, -0.11]) significantly mediated the direct pathway between flow and suicide risk, ($F(3, 326) = 61.02$, $p < .001$).

Research Q5c. Does purpose in life significantly mediate the relationship between flow and suicide risk in art majors and non-art majors?

Hypothesis 5c. Purpose in life will significantly mediate the relationship between flow and suicide risk in both art majors and non-art majors. Purpose in life was added to Model 2 to create Model 3 for art majors in Table 3. Results indicated purpose in life partially mediated the relationship between flow and suicide risk ($F(4,139) = 42.76$, $p < .001$). The effect of hope and resilience on suicide risk of in the mediation model for art majors became insignificant as seen in the unstandardized beta scores for hope ($B = -.02$, $p > .05$) and resilience ($B = -.10$, $p > .05$). Model 3 accounted for about 55% of the variance in suicide risk for art majors. Suicide risk scores decreased by 0.34 points for each one point increase in purpose in life. Using a Sobel test, the indirect effect of purpose in life was significant ($B = -.03$, $p < .001$, 95% CI [-0.44, -0.24]).

For non-art majors, Model 3 displayed in Table 4 accounted for approximately 55% of the variance in suicide risk. Table 4 demonstrates the indirect pathway of Model 3 (B = -.45, p < .001, 95% CI [-0.52, -0.37]) significantly mediated the direct pathway between flow and suicide risk, (F(4, 325) = 98.55, p < .001).

Individually, hope, resilience, and purpose in life were found to partially mediate the relationship between flow and suicide risk in both art majors and non-art majors. When combined into one model, it was found that purpose in life mediated the relationship between flow and suicide risk substantially more than hope and resilience combined. Therefore, it was concluded that purpose in life was a confounding variable in Model 3 for both groups, and best explained the mediation between flow and suicide risk apart from hope and resilience. Figures 1 and 2 provide visual representations of the relationships between the study variables for both art majors and non-art majors. Both figures include the direct pathways between flow consciousness and suicide risk, and the multiple linear regression models with accompanying standardized beta coefficients and standard errors.

Overall, increased flow consciousness significantly predicted higher levels of purpose in life, and as sense of purpose in life increased, suicide risk scores significantly decreased. Therefore, results from this study provide evidence that experiencing flow consciousness during preferred college activities relating to major can significantly decrease suicide risk in college students as mediated by increased purpose in life.

Table 3
Multiple Linear Regression Predictors of Suicide Risk Among Art Majors

	Suicide Risk			
			Model 3	
Variable	Model 1 *B*	Model 2 *B*	*B*	95% CI
Constant	27.10***	27.30***	30.31***	[25.82, 34.80]
Flow	-0.00	-0.00	0.04	[-0.05, 0.13]
Hope	-0.42***	-0.31***	-0.02	[-0.16, 0.11]
Resilience		-0.28**	-0.10	[-0.27, 0.07]
Purpose in Life			-0.34***	[-0.44, -0.24]
R^2	.37	.41	.55	
F	41.23***	32.31***	42.76***	
ΔR^2	.28	.04	.14	
ΔF	63.55***	9.13**	44.15***	

Note. N = 144. CI = confidence interval.
*p < .05. **p < .01. ***p < .001.

Table 4
Multiple Linear Regression Predictors of Suicide Risk Among Non-art Majors

	Suicide Risk			
			Model 3	
Variable	Model 1 *B*	Model 2 *B*	*B*	95% CI
Constant	28.72***	28.84***	34.45***	[31.34, 37.55]
Flow	-0.02	-0.01	0.02	[-0.04, 0.08]
Hope	-0.43***	-0.34***	0.05	[-0.05, 0.14]
Resilience		-0.24***	-0.07	[-0.18, 0.04]
Purpose in Life			-0.45***	[-0.52, -0.37]
R^2	.33	.36	.55	
F	81.44***	61.02***	98.55***	
ΔR^2	.25	.03	.19	
ΔF	121.68***	13.78***	135.59***	

Note. N = 330. CI = confidence interval.
*p < .05. **p < .01. ***p < .001.

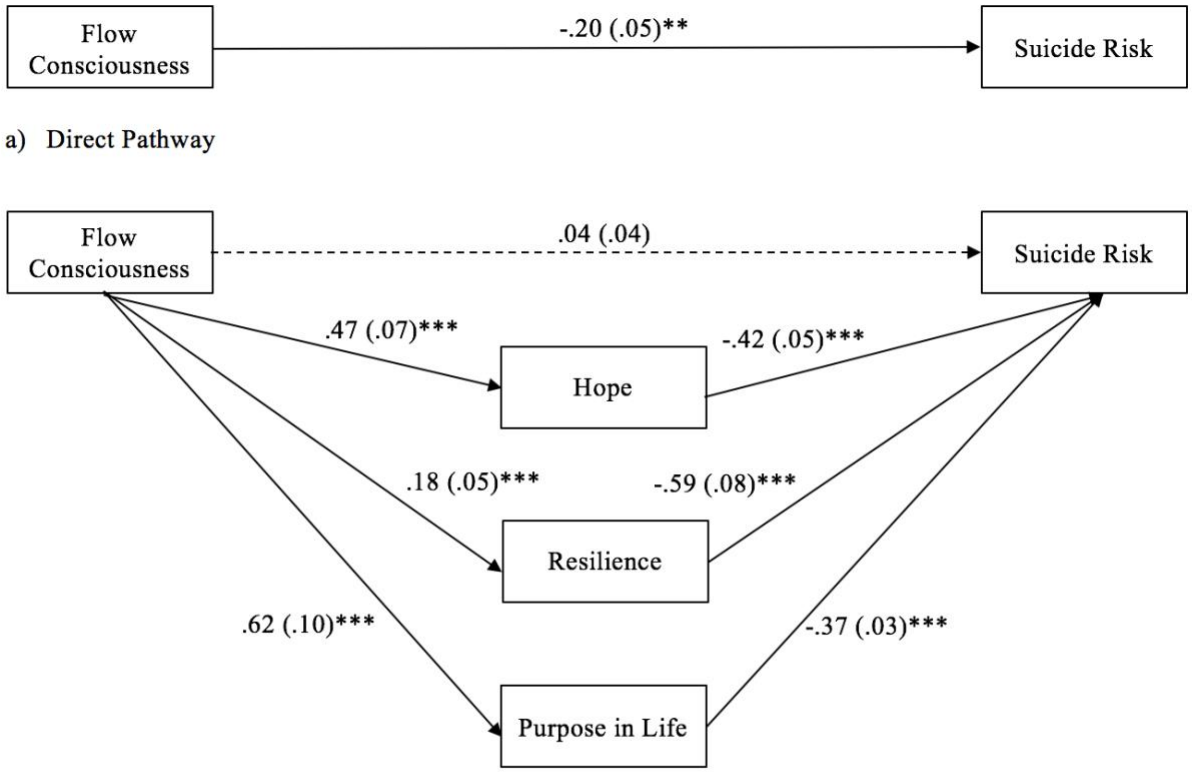

Figure 1. Mediation model for art majors: Suicide risk regressed onto flow, mediated by hope, resilience, and purpose in life. Standardized beta coefficients and standard errors are provided along paths.
*$p < .05$. **$p < .01$. ***$p < .001$

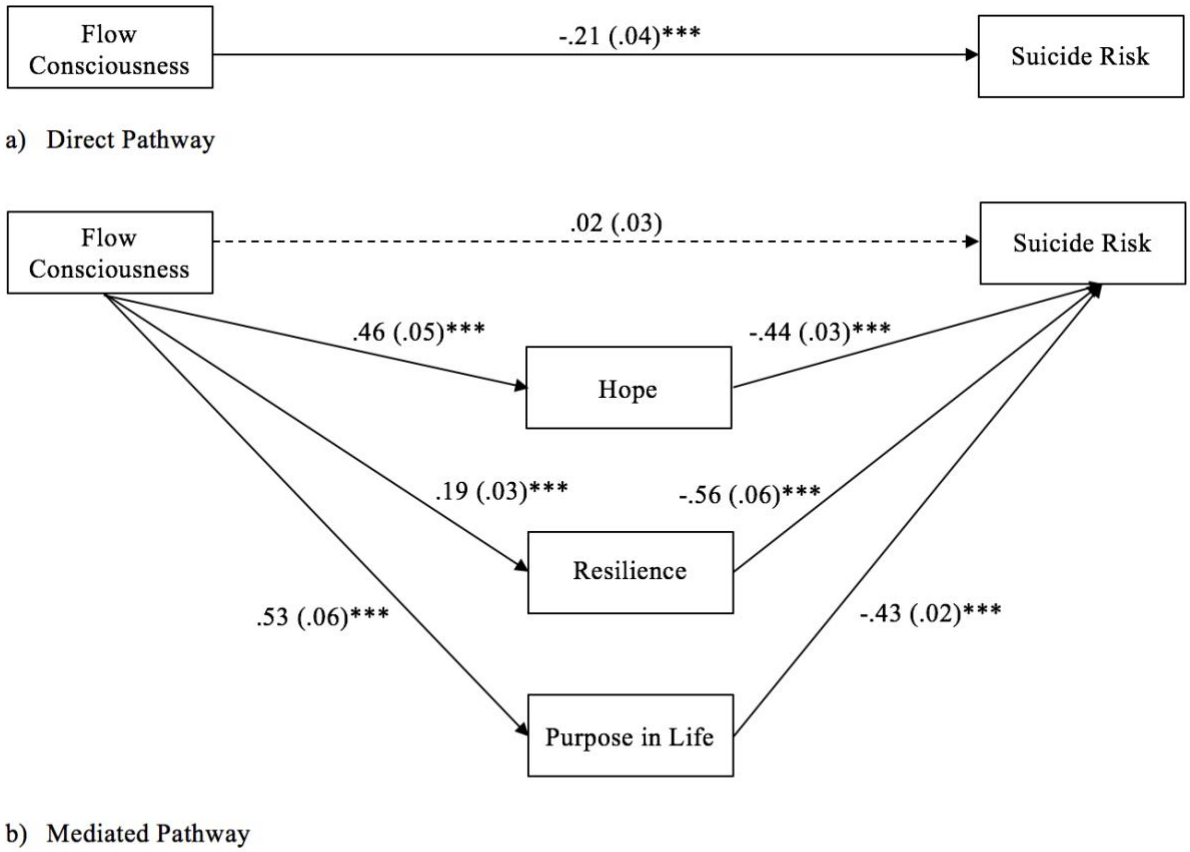

Figure 2. Mediation model for non-art majors: Suicide risk regressed onto flow, mediated by hope, resilience, and purpose in life. Standardized beta coefficients and standard errors are provided along paths.
**p* < .05. ***p* < .01. ****p* < .001.

Chapter 5: Discussion, Implications, Limitations, and Future Research

Discussion

The purpose of this study was to increase the understanding of highly creative college students through an awareness of potential suicide risk within this population, as well as determine how the psychological benefits of creativity can help protect them from this risk. Three objectives were informed by the purpose of this thesis to help organize subsequent research questions and hypotheses. Objective 1 was to determine if art majors were at a higher risk for depression and suicide than non-art majors. Objective 2 sought to investigate whether there was support for a positive relationship between creativity and flow consciousness. Finally, objective 3 was created to ascertain variables that mediated the relationship between flow and suicide risk.

Results indicate that this sample of art majors were not at a greater risk for suicide or depression than non-art majors. Past research (Kaufman & Beghetto, 2009; Runco, 1998; Stack, 1996) reported that professional creative ability, “pro-c”, and eminent creative ability, “Big-C” levels indicate potential risk for poor mental health outcomes, including depression and suicide risk. Findings from this study shown that at the “little-c” creative ability level, there was not a significant risk for depression or suicide in this sample. Further results from comparison of means demonstrated that art majors had higher levels of creative ability, and experienced flow consciousness significantly more than non-art majors during engagement in their favorite activity relating to their major. The difference in level of flow experienced between both groups did not impact their suicide risk scores. Hope, resilience, and purpose in life had significant positive relationships with flow for art majors and non-art majors. Preferred flow activities relating to

participants' major, creative (visual art, music, writing, and performance) or otherwise, resulted in decreased suicide risk as mediated by increased purpose in life.

Consistent with the literature (Csikszentmihalyi, 1996), correlation analysis in this study did support a significant, positive relationship between creativity and flow. The more creative students were, typically, the higher their flow scores as well. Again, one can be highly creative without being in a flow consciousness, but from the results of this study, they may be missing out on a potentially positive experience. Results from the mediation analyses validated that both increased hopefulness and resilience explained slight reductions in suicide risk, but were weak models overall. When purpose in life scores were added to the overall mediation model, those scores alone better explained 55% of the variance in suicide risk, and the combined impact of flow, hope, and resilience became insignificant. Thus, flow predicted lower suicide risk via increased purpose in life.

Overall, it can be suggested that creativity may be a protective factor to suicide risk when engaging in an activity that allows creators to experience flow consciousness. When creators are in flow, they are also experiencing a sense of purpose in life, and the stronger their purpose in life, the lower their risk of suicide.

Implications

This thesis demonstrated how flow consciousness, manifested through creativity, could foster hope, purpose in life, and resilience that protect against suicide risk. Findings provide evidence as to the importance of everyday creativity. Understanding the positive and negative consequences of creativity, and how they impact the mental health of highly creative college students can better inform both the personal and professional people in students' lives.

No evidence supported the hypothesis that highly creative students may be at a greater risk for suicide, but therapists can use the results from this study to inform appropriate, creative, interventions that cultivate flow and purpose in life with clients who are at risk for suicide. Similarly, career counselors and professors may want to encourage students to explore majors that are informed by their preferred flow activities. Additionally, these findings can help policy makers and public stakeholders to understand the psychological benefits of arts-based community programs, and advocate for continued funding. Knowing this information, parents are encouraged to let children be as creative as possible in hopes of fostering personally meaningful interests, and potentially adaptive coping skills. Finally, the results from this study can give future researchers new and expanded directions to continue investigating the numerous benefits of creativity.

As for society, the more mental health is discussed in a positive light, the less power stigma has to silence desperately needed discussion. This research supports the notion that creativity contributes to wellness, specifically through engagement in flow consciousness, in turn, helping to normalize mental health. Providing people with opportunities to increase their sense of purpose in life through creative activities that cultivate flow are important for positive mental health outcomes. According to Myers and Sweeny (2004), improved mental health can lead to increased overall wellness. This systemic effect demonstrates that, in order for society to not only survive, but to flourish, we cannot afford to look past the holistic benefits of our inherent creativity.

Limitations

Despite the implications of this study's results, a variety of limitations should be clearly noted. Starting with the literature review, eminent creatives have been the most widely studied

group across creativity literature. Ergo, there is a need for creativity and mental health data to be drawn from more diverse samples, specifically concerning ability level. Diversity was also an issue in the present study as the majority of the sample was collected from 18-24 year-old, White, females from the Midwest region of the United States. Results could be better generalized had there been a greater representation of minority groups and diverse geographic location. Distribution of the survey served as another limitation due to the natural generalizability issues of obtaining a convenience sample rather than a true random sample.

Limitations also existed in the instruments used to collect data. It should be noted that all seven assessments used in this study were intended to capture the general construct of each variable, making them typically short/brief measurements. Limitations of this study may be the number of different measurements used, and the broad, summative scores obtained. In the future, using less measurements and greater depth of study of each variable may result in a more vivid understanding of the associations between the variables.

Future Research

This thesis was informed by the desire to start understanding the holistic benefits of creativity from an ecological perspective. A theoretical contribution from this study included the mediating effect of purpose in life that significantly reduce suicide risk in both art majors and non-art majors. Future research should continue to piece apart various ways of operationalizing creativity and mental health outcomes. It should also look at the entire spectrum of social implications of creativity from the individual experience, to worldwide impacts. Research surrounding creativity and the arts can be a form of advocacy for mental health, public art, education, community development, social justice, and policy.

Future investigators should examine multicultural variables including but not limited to, gender, age, ethnicity, race, sexual orientation, socioeconomic status, social class, education, mental and physical ability, relationship status, job status, politics, language, values, health status, family, location, and trauma. Also, to better understand personal perspectives, qualitative designs should be used to continue to investigate the mental health benefits of flow activities. A more in-depth study of the variables used in this thesis (college students, creativity, flow, and risk and protective factors to mental health) could inform future research as well.

It is recommended that subsequent studies examine the mental health differences between various categories of college majors from both broad and specific lenses such as grouping students into different educational tracks (e.g., art, STEM, business, medical, and humanities). Research could get more specific, and dissect each general track into specific majors. In terms of creatives, ability level and domain specificity are areas to continue to explore. Investigators can also open up the possibilities of flow and mental health by examining various flow activities such as sports and socializing, as well as the nine subjective characteristics of flow. Overall, research should continue to explore the mediating factors between creativity, flow, and positive mental health outcomes in hopes of contributing to the well-being of artists and non-artists alike.

References

Andreason, N. C. (1987). Creativity and mental illness: Prevalence rates in writers and their first degree relatives. *American Journal of Psychiatry*, *144*(10), 1288-1292. doi: 10.1176/ajp.144.10.1288

Armstrong, L. L., & Manion, I. G. (2015). Meaningful youth engagement as a protective factor for youth suicidal ideation. *Journal of Research on Adolescence*, *25*(1), 20-27. doi: 10.1111/jora.12098

Barron, F. (1969). *Creative person and creative process.* New York: Holt, Rinehart and Winston, Inc. https://doi.org/10.1080/00131727009340431

Bates, M. J., & Bowles, S. V. (2011). *Review of well-being in the context of suicide prevention and resilience.* Defense Centers of Excellence for Psychological Health & Traumatic Brain Injury (DCoE). Retrieved from http://dcoe.mil/files/well-being-in-the-context-of-suicide-prevention-and-resilience.pdf

Beck, A. T. (1986). Hopelessness as a predictor of eventual suicide. *Annals of the New York Academy of Sciences*, *487*(1), 90-96. doi: https://doi.org/10.1111/j.1749-6632.1986.tb27888.x

Carson, S. H., Peterson, J. B., & Higgins, D. M. (2005). Reliability, validity, and factor structure of the creative achievement questionnaire. *Creativity Research Journal*, *17*(1), 37-50. doi: 10.1207/s15326934crj1701_4

Cassandro, V. J. (1998). Explaining premature mortality across fields of creative endeavor. *Journal of Personality*, *66*(5), 805-833. doi: 10.1111/1467-6494.00033

Centers for Disease Control and Prevention. (2016). *Fatal Injury Report.* Retrieved from https://www.cdc.gov/injury/wisqars/fatal.html

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Conner, T. S., DeYoung, C. G., & Silvia, P. J. (2018). Everyday creative activity as a path to flourishing. *The Journal of Positive Psychology, 13*(2), 181-189. doi: 10.1080/17439760.2016.1257049

Crumbaugh, J. C. (1968). Cross-validation of Purpose in Life Test based on Frankl's concepts. *Journal of Individual Psychology, 24*, 74-81.

Crumbaugh, J. C., & Maholick, L. T. (1964). An experimental study in existentialism: The psychometric approach to Frankl's concept of noogenic neurosis. *Journal of Clinical Psychology, 20*, 589-596.

Csikszentmihalyi, M. (1988). The future of flow. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), *In Optimal experience: Psychological studies of flow in consciousness* (pp. 364-383). Cambridge, United Kingdom: Cambridge University Press.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience.* New York, NY: HarperCollins Publishers.

Csikszentmihalyi, M. (1996). *Creativity: The psychology of discovery and invention.* New York, NY: HarperCollins Publishers.

Csikszentmihalyi, M. (2009). Flow. In *The Encyclopedia of Positive Psychology.* (Vol. 1, pp. 394-400). West Sussex, UK: Wiley-Blackwell.

Damon, W., Menon, J., & Cotton Bronk, K. (2003). The development of purpose during adolescence. *Applied Developmental Science, 7*(3), 119-128. doi: 10.1207/S1532480XADS0703_2

Davidson, C. L., Wingate, L. R., Rasmussen, K. A., & Slish, M. L. (2009). Hope as a predictor

of interpersonal suicide risk. *Suicide and Life-Threatening Behavior*, *39*(5), 499-507. doi: 10.1521/suli.2009.39.5.499

Domino, G. (1988). Attitudes toward suicide among highly creative college students. *Creativity Research Journal*, *1*(1), 92-105. https://doi.org/10.1080/10400418809534291

Drapeau, C. W., & DeBrule, D. (2011). The commonalities of creativity and suicide in college students. *Modern Psychological Studies*, *17*(1), 59-79.

Drapeau, C. W., & DeBrule, D. S. (2013). The relationship of hypomania, creativity, and suicidal ideation in undergraduates. *Creativity Research Journal*, *25*(1), 75-79. doi: 10.1080/10400419.2013.752231

Edwards, L. M. (2009). Hope. In *The Encyclopedia of Positive Psychology.* (Vol. 1, pp. 487-491). West Sussex, UK: Wiley-Blackwell.

Engeser, S., & Rheinberg, F. (2008). Flow, performance and moderators of challenge-skill balance. *Motivation and Emotion*, *32*(3), 158-172. doi: 10.1007/s11031-008-9102-4

Fisher, B. J., & Specht, D. K. (2000). Successful aging and creativity in later life. *Journal of Aging Studies*, *13*(4), 457-472. doi: 10.1016/S0890-4065(99)00021-3

Frankl, V. E. (1963). *Man's search for meaning: An introduction to logetheraphy*. Boston, MA: Beacon Press.

Harris, K. M., Syu, J. J., Lello, O. D., Chew, Y. E., Willcox, C. H., & Ho, R. H. (2015). The ABC's of suicide risk assessment: Applying a tripartite approach to individual evaluations. *PLoS One*, *10*(6), e0127442. doi: 10.1371/journal.pone.0127442

Heenan, D. (2006). Art as therapy: an effective way of promoting positive mental health?. *Disability & Society*, *21*(2), 179-191. https://doi.org/10.1080/09687590500498143

Jamison, K. R. (1989). Mood disorders and patterns of creativity in British writers and

artists. *Psychiatry*, *52*(2), 125-134.

Jamison, K. R. (1993). *Touched with fire*. New York: Free Press.

Juda, A. (1949). The relationship between highest mental capacity and psychic abnormalities. *American Journal of Psychiatry*, *106*(4), 296-307. doi: 10.1176/ajp.106.4.296

Kaufman, J. C. (2001a). Genius, lunatics, and poets: Mental illness in prize-winning authors. *Imagination, Cognition, and Personality*, *20*, 305-314. doi: 10.2190/M3W0-AT3T-GTLE-0L9G

Kaufman, J. C. (2001). The Sylvia Plath effect: Mental illness in eminent creative writers. *The Journal of Creative Behavior*, *35*(1), 37-50. https://doi.org/10.1002/j.2162-6057.2001.tb01220.x

Kaufman, J. C., & Beghetto, R. A. (2009). Beyond big and little: The four c model of creativity. *Review of General Psychology*, *13*(1), 1-12. doi: 10.1037/a0013688

Kennett, C. E. (2000). Participation in a creative arts project can foster hope in a hospice day centre. *Palliative Medicine*, *14*(5), 419-425. doi: 10.1191/026921600701536255

Kermani, Z., Khodapanahi, M., & Heidari, M. (2011). Psychometrics features of the Snyder Hope Scale. *Journal of Applied Psychology*, *5*(3), 7-23.

Kerr, B. (2009). Creativity. In *The Encyclopedia of Positive Psychology.* (Vol. 1, pp. 254-257). West Sussex, UK: Wiley-Blackwell.

Kerr, B., & McKay, R. (2013). Searching for tomorrow's innovators: Profiling creative adolescents. *Creativity Research Journal*, *25*(1), 21-32. doi: 10.1080/10400419.2013.752180

Kirton, M. J. (1994). *Adaptors and innovators: Styles of creativity and problem solving*. London:

Routledge.

Kleiman, E. M., & Beaver, J. K. (2013). A meaningful life is worth living: Meaning in life as a suicide resiliency factor. *Psychiatry Research*, *210*(3), 934-939. doi: 10.1016/j.psychres.2013.08.002

Krawczynski, M., & Olszewski, H. (2000). Psychological well-being associated with a physical activity programme for persons over 60 years old. *Psychology of Sport and Exercise*, *1*(1), 57-63. doi: 10.1016/S1469-0292(00)00004-2

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: a new depression diagnostic and severity measure. *Psychiatric Annals*, *32*(9), 509-515. doi: 10.3928/0048-5713-20020901-06

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The phq-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606-613. doi: 10.1046/j.1525-1497.2001.016009606.x

Kyaga, S., Landén, M., Boman, M., Hultman, C. M., Långström, N., & Lichtenstein, P. (2013). Mental illness, suicide and creativity: 40-year prospective total population study. *Journal of Psychiatric Research*, *47*(1), 83-90. doi: 10.1016/j.jpsychires.2012.09.010

Lomas, T. (2016). Positive art: Artistic expression and appreciation as an exemplary vehicle for flourishing. *Review of General Psychology*, *20*(2), 171. doi: 10.1037/gpr0000073

Ludwig, A. M. (1994) Mental illness and creative activity in female writers. *American Journal of Psychiatry*, *151*, 1650-1656. doi: 10.1176/ajp.151.11.1650

Ludwig, A. M. (1995). *The price of greatness: Resolving the creativity and madness controversy*. New York: Guilford Press.

Manmiller, J. L., Kumar, V. K., & Pekala, R. J. (2005). Hypnotizability, creative capacity,

creativity styles, absorption, and phenomenological experience during hypnosis. *Creativity Research Journal*, *17*(1), 9-24. doi: 10.1207/s15326934crj1701_2

Masten, A. S., & Powell, J. L. (2003). A resilience framework for research, policy, and practice. In S. S. Luthar (Ed.), *Resilience and vulnerabilities: Adaptation in the context of childhood adversities* (pp. 1-25). New York: Cambridge University Pres.

Maujean, A., Pepping, C. A., & Kendall, E. (2014). A systematic review of randomized controlled studies of art therapy. *Art Therapy*, *31*(1), 37-44. https://doi.org/10.1080/07421656.2014.873696

Mayo, K. R. (2016). *Creativity, spirituality, and mental health: Exploring connections*. New York, NY: Routledge.

Meier, A., & Edwards, H. (1974). Purpose-in-Life Test: Age and sex differences. *Journal of Clinical Psychology*, *30*(3), 384-386. doi: 10.1002/1097-4679(197407)30:3<384::AID-JCLP2270300351>3.0.CO;2-V

Meneely, J., & Portillo, M. (2005). The adaptable mind in design: Relating personality, cognitive style, and creative performance. *Creativity Research Journal*, *17*(2-3), 155-166. doi: 10.1080/10400419.2005.9651476

Metzl, E. S., & Morrell, M. A. (2008). The role of creativity in models of resilience: theoretical exploration and practical applications. *Journal of Creativity in Mental Health*, *3*(3), 303-318. doi: 10.1080/15401380802385228

Missett, T. C. (2013). Exploring the relationship between mood disorders and gifted individuals. *Roeper Review*, *35*(1), 47-57. doi: 10.1080/02783193.2013.740602

Mraz, W., & Runco, M. A. (1994). Suicide ideation and creative problem solving. *Suicide and Life-Threatening Behavior*, *24*(1), 38-47.

Myers, J. E., & Sweeney, T. J. (2004). The indivisible self: An evidence-based model of wellness. *Journal of Individual Psychology, 60*(3), 234-245.

Parr, G. D., Montgomery, M., & DeBell, C. (1998). Flow theory as a model for enhancing student resilience. *Professional School Counseling*, *1*(5), 26-31.

Piirto, J. (1998). Themes in the lives of successful contemporary US women creative writers. *Roeper Review*, *21*(1), 60-70. doi: 10.1080/02783199809553933

Piirto, J. (2004). *Understanding creativity.* Scottsdale, AZ: Great Potential Press Inc. doi: 10.1016/S1514-0326(10)60016-5

Pisca, N. E. & Feldman, D. B. (2009). Purpose in Life. In *The Encyclopedia of Positive Psychology.* (Vol. 2, pp. 812-816). West Sussex, UK: Wiley-Blackwell.

Post, F. (1996). Verbal creativity, depression and alcoholism. An investigation of one hundred American and British writers. *The British Journal of Psychiatry*, *168*(5), 545-555. https://doi.org/10.1192/bjp.168.5.545

Preti, A., De Biasi, F., & Miotto, P. (2001). Musical creativity and suicide. *Psychological Reports*, *89*(3), 719-727. doi: 10.2466/pr0.2001.89.3.719

Preti, A., & Miotto, P. (1999). Suicide among eminent artists. *Psychological Reports*, *84*(1), 291-301. doi: 10.2466/pr0.1999.84.1.291

Rheinberg, F., Manig, Y., Kliegl, R., Engeser, S., & Vollmeyer, R. (2007). Flow bei der Arbeit, doch Glu¨ck in der Freizeit. Zielausrichtung, Flow und Glu¨cksgefu¨hle. Zeitschrift fu¨r Arbeits- und Organisationspsychologie, 51, 105-115. Flow during work but happiness during spare time. Goals, flow experience and happiness. doi:10.1026/0932-4089.51.3.105.

Roy, A., Carli, V., & Sarchiapone, M. (2011). Resilience mitigates the suicide risk associated

with childhood trauma. *Journal of Affective Disorders*, *133*(3), 591-594. doi: 10.1016/j.jad.2011.05.006

Runco, M. A. (1998). Suicide and creativity: The case of Sylvia Plath. *Death Studies*, *22*(7), 637-654. doi: 10.1080/074811898201335

Schildkraut, J. J., Hirshfeld, A. J., & Murphy, J. M. (1994). Mind and mood in modern art, II: Depressive disorders, spirituality, and early deaths in the abstract expressionist artists of the New York school. *The American Journal of Psychiatry*, *151*(4), 482-8. doi: 10.1176/ajp.151.4.482

Seeman, M. (1991). Alienation and anomie. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.) *Measures of personality and social psychological attitudes* (pp. 291-37 1). San Diego, CA: Academic Press.

Silverman, M. J. (2016). Effects of educational music therapy on state hope for recovery in acute care mental health inpatients: A cluster-randomized effectiveness study. *Frontiers in Psychology*, *7*, 1569. doi: 10.3389/fpsyg.2016.01569

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, *15*(3), 194-200. doi: 10.1080/10705500802222972

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., Yoshinobu, L., Gibb, J., Langelle, C., & Harney, P. (1991). The will and the ways: development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, *60*(4), 570-585. doi: 10.1037/0022-3514.60.4.570

Stack, S. (1996). Gender and suicide risk among artists: a multivariate analysis. *Suicide and Life Threatening Behavior*, *26*(4), 374-379.

Suicide. (2017, November). Retrieved from https://www.nimh.nih.gov/health/statistics/suicide/index.shtml

Torrance, E. P. (1995). *Why fly? A philosophy of creativity*. Norwood, NJ: Ablex Publishing.

Webb, J. T., Meckstroth, F. A., & Tolan, S. S. (1989). *Guiding the gifted child: A practical source for parents and teachers.* Scottsdale, AZ: Great Potential Press, Inc.