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The Functionality of Creativity and its Relationship to Hypomania and Associated Factors

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Abstract

Research on creativity has consistently linked it to positive behaviors such as productivity and flow. Though the causal direction remains unknown, research has also linked creativity to a heightened risk for mental illness, from where the idea of the "mad creative genius" is born. This research utilizes a nonclinical sample of Connecticut College students (n = 84) to explore how differing amounts of hypomania and creativity within an individual may be related to his/her psychological wellbeing. The student sample was 24 males, 57 females, and 3 students identifying themselves as "other," all between the ages of 18 and 22. Participants completed a series of creativity measures, as well as questionnaires regarding hypomania, flow, impulsivity, resilience, vulnerability, and personal and familial mental health history. Several regression analyses were conducted examining the predictive capacity of creativity and hypomania on emotional functioning. Creative behavior tended to predict positive emotionality, hypomania tended to predict negative emotionality, and creative thought was mixed. Interaction effects between creative thought and hypomania were observed in the models predicting both vulnerability and resilience. Future research should utilize greater sample size to better understand these interactions. Additionally, future research should include clinical sampling and widening the scope of the creativity measures.

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Introduction

Creativity is a concept that is dauntingly difficult to define. From discipline to discipline, it is theorized in many different ways, making it a fickle factor to hypothesize about and study. Freud, the pioneer theorist in many areas of psychology, was not surprisingly "one of the first to advance a theory of creativity, propos[ing] a psychodynamic theory of creativity based on sexuality… that creative people sublimate much of their libidinal energies into creative activities, such as writing, painting, composing, and making scientific discoveries" (Heilman, 2005, p. 135). While it is often an instinct to dismiss Freudian theory as overly preoccupied with sexual development, it did lay the groundwork for the idea of creativity as a productive release. After psychodynamic theories surfaced in the 1940s, other schools of thought took stabs at codifying the phenomenon. Famous behaviorist B.F. Skinner and others "suggest that people create because they have previously been rewarded for their creations (e.g., positive reinforcement)" (Heilman, p. 135). This would imply, however, that every creative person has always been credited, recognized, and encouraged with creative effort or achievement. The truth is that "many of the most creative artists, authors, and scientists… never receive recognition or rewards for the work during their life, but most continue to work until they become ill or die" (Heilman, p. 135). Creative individuals are psychologically unique and often motivated by something less tangible than praise or reward. The focus of this study is the claim that creativity and mental illness are closely related. The current study will consider three—of many—different theories of creativity, and go on to address issues of functionality and emotional well-being

in the context of creativity. The literature review focuses on the predictive utility of hypomania and creativity on emotional well-being factors by considering studies of mania in college students, as well as the psychological factors associated with creativity and/or mania. This will lay the foundation for the present study of a nonclinical sample of college students in order to better understand how emotionality and well-being are related to varying degrees of creativity.

Creativity Defined Across Theories

Defined as paradoxical balance.

Positive psychology researcher Mihalyi Csikszentmihalyi, the father of the theory of flow, "[studied] the creative process in the 1960s… [and] was struck by the fact that when work on a painting was going well, the artist persisted single-mindedly, disregarding hunger, fatigue, and discomfort" (Nakamura & Csikszentmihalyi, 2002, p. 89). This principle observation was his bridge into extensive research on creativity. It is important to keep in mind that his research is qualitative, and his findings are more subjective than studies to which we are accustomed. However, this is the nature of the beast, so to speak. Because there is so much about creativity that we do not understand, and so much ambiguity and interpretation involved in studying it, some of the most reliable research on the topic—including Csikszentmihalyi's findings—is largely descriptive. In order to strip away the many convoluted layers and often contradictory definitions of creativity, he aims to define it in a social and evolutionary context. Creativity is what sets us apart from chimpanzees, he claims. It is "what makes us different—our language, values, artistic expression, scientific understanding and technology—[the]

result of individual ingenuity that was recognized, rewarded, and transmitted through learning" (Csikszentmihalyi, 1996, p. 1-2). Csikszentmihalyi conceptualizes creativity as a functional and positive thing. This is perhaps because he always pairs it with an outcome, a product, an end goal that serves a functional purpose. He refers to three "elements" or ingredients, in the context of an "end product," to define creativity: "a culture that contains symbolic rules, a person who brings novelty into the symbolic domain, and a field of experts who recognize and validate the innovation," all of which "are necessary for a creative idea, product, or discovery to take place" (Csikszentmihalyi, 1996, p. 6). A clear socially defined anecdote about the historical development of art demonstrates this fully:

> In the 1960s, when abstract expressionism was the reigning style, those art students who tended to be sullen, brooding, and antisocial were thought by their teachers to be very creative… when these students left school and tried to establish careers in the art world, they found that being antisocial did not get them very far… then the Warhol cohort replaced the abstract expressionists, and it was young artists with cool, clever, flip personalities who projected the aura of creativity. This, too, was a transient mask. The point is that you cannot assume the mantle of creativity just by assuming a certain personality style. (Csikszentmihalyi, 1996, p. 56)

The societal setting is constantly changing and defining the contextual definition of creativity or innovation. If creativity is truly reducible to an "interaction between a person's thoughts and a sociocultural context… a systemic rather than an individual

phenomenon," is Csikszentmihalyi implying that creativity has nothing to do with personal, definable characteristics (Csikszentmihalyi, 1996, p. 23)?

The complicated answer is no. Although the sociocultural context mediates and assigns value to creative innovation and thought, creativity originates from a careful set of circumstances within the individual. If forced to pick a word to describe the creative personality, he would choose "*complexity*… showing tendencies of thought and action that in most people are segregated" (Csikszentmihalyi, 1996, p. 57). The creative personality is best thought of as a series of dynamic paradoxes, which must be constantly kept in balance while shifting in multiple dimensions. This cascade begins with basic human paradox, that "each of us is born with two contradictory sets of instructions: a conservative tendency, made up of instincts for self-preservation, self-aggrandizement, and saving energy, and an expansive tendency made up of instincts for exploring, for enjoying novelty and risk—the curiosity that leads to creativity belongs to this set…Whereas the first tendency requires little encouragement or support from the outside to motivate behavior, the second can wilt if it is not cultivated. If too few opportunities for creativity are available, if too many obstacles are placed in the way of risk and exploration, the motivation to engage in creative behavior is extinguished" (Csikszentmihalyi, 1996, p. 11). According to Csikszentmihalyi, we all begin with differing levels of inherent capability; life and experience are what shape us. If creativity is a muscle of potential, it is experience and reinforcement that lead it to grow or atrophy. With this framework in mind, it must be understood that the creative person is not half one "tendency," half the other:

> The [creative person does not hold] some position at the midpoint between two poles. [Creativity] does not imply, for instance, being wishy-washy, so that one is never very competitive or very cooperative. Rather, it involves the ability to move from one extreme to the other as the occasion requires… creative persons definitely know both extremes and experience both with equal intensity and without inner conflict. (Csikszentmihalyi, 1996, p. 57).

Though an inherent creative seed or foundation must exist, Csikszentmihalyi refuses to accept that one particular organization of DNA or specific personality construct defines the essence of a creative individual, reiterating more than once that "it is important to point out the tenuousness of the individual contribution to creativity, because it is usually so often overrated" (1996, p. 46). While a "genetic predisposition for a given domain" of creativity is undoubtedly a preceding advantage or clue, creative individuals themselves also stress the importance of proper encouragement and plain luck (Csikszentmihalyi, 1996, p. 52). Csikszentmihalyi does concede, however, in identifying a few traits all creative people possess: the ability to "make connections with adjacent areas of knowledge," the tendency to be "caring and sensitive," while also inevitably "push[ed] toward specialization and selfishness," an "openness to experience" and problem solving, and constant attention and synthesis of information from their present environment (1996, p. 10, 53). Creative individuals begin with some degree of inherent creativity, but environmental factors are necessary for full development of innovation and creative ideas. The identifiable commonalities of creative individuals, understandably contradictory at times by nature of the ability to

operate on and between two poles or extremes, are born from many layers of defined paradoxical balances.

First, Csikszentmihalyi points to the contradictory simultaneous existence of physical explosiveness and calm, where creative individuals "work long hours, with great concentration, while projecting an aura of freshness and enthusiasm" (Csikszentmihalyi, 1996, p. 58). He points to sexual expression as a demonstrative manifestation. Sexuality is a balance: "without eros, it would be difficult to take life on with vigor; without restraint, the energy could easily dissipate" (Csikszentmihalyi, 1996, p. 59). This implies a creativity that is harnessed and controlled.

Creative individuals are typically described as divergent thinkers. It is often assumed that creativity is inextricably linked to divergent thinking by definition, considering divergent thinking is characterized by "fluency, or the ability to generate a great quantity of ideas; flexibility, or the ability to switch from one perspective to another; and originality in picking unusual associations of ideas" (Csikszentmihalyi, 1996, p. 60). Its alleged opposite, convergent thinking, is "measured by IQ tests, and involves solving well-defined, rational problems that have one correct answer" (Csikszentmihalyi, 1996, p. 60). Assuming only divergent thinking is involved in creative thought is too simplistic and linear. Csikszentmihalyi argues that "divergent thinking is not much use without the ability to tell a good idea from a bad one—and this selectivity involves convergent thinking" (1996, p. 60-61). As Heilman (2005) puts it, "convergent thinkers look for signs that they have learned to help them complete the puzzle (fitting the mold)…Divergent

thinking is the ability to take a different direction from the prevailing modes of thought or expression," which still involves being able to engage in convergent thinking in order to subsequently deviate (p. 150). Rather than thinking of creative people as simply "different" or innovative, they should be thought of as complex. The convergent-divergent balance is necessary in order to maintain an innovative thought pattern that is applicable and useful to versatile circumstances.

According to Csikszentmihalyi, a nuanced combination of "responsibility and irresponsibility" is also characteristic of the creator, though the relationship is rather dependent, where "playfulness doesn't go very far without its antithesis, a quality of doggedness, endurance, [and] perseverance" (1996, p. 61). An unbounded imagination allows one to think "outside the box," but a person with zero inhibition and/or discipline can become wild and limitless in a harmful way. It can be seen as a measure of risk and acceptance. In order to "discover new ideas… explorers must take high risks. Following in the footsteps of people who are already successful is generally a low-risk behavior that can provide a sense of security…in contrast, exploring new territories and ideas carries the risks of rejection and failure, but a successful exploration or creation brings euphoria and joy" (Heilman, 2005, p. 139). The ability to accept and mediate feelings in terms of risk and reward is an essential question of control. Another closely related paradoxical balance is that of passion and objectivity (Csikszentmihalyi, 1996, p. 72). Fire ignites creativity and innovation, but without the ability to control it, it can lead to disaster. The first part of the craft is the innovation, but without the careful editing, thought, and control, the production of a masterpiece is counterintuitive.

Along those lines, another closely related tension exists where "creative individuals alternate between imagination and fantasy at one end, and a rooted sense of reality at the other…What makes a novel idea creative is that once we see it, sooner or later we recognize that, strange as it is, it is true" (Csikszentmihalyi, 1996, p. 63). Because creativity is defined in the social context, functional reality cannot exist solely within the head of the creative individual. Any innovation must be validated by others, and in order to be understood, must be able to bridge the gap between fantasy and applied reality. The inability to transcend one world, visit the other, and connect the two defines the noncreative individual. In Csikszentmihalyi's words, "when a person begins to work creatively, all bets are off—the artist may be as much a realist as the physicist, and the physicist as imaginative at the artist" (1996, p. 64). It is the versatility and the ability to connect and apply that establishes the possible avenue toward creativity. Similarly, while "creative people are thought to be rebellious and independent… it is impossible to be creative without having internalized a domain of culture" (Csikszentmihalyi, 1996, p. 71). This paradoxical balance touches upon buzzwords of "traditional and conservative" versus "rebellious and iconoclastic" (Csikszentmihalyi, 1996, p. 71). Without a cultural domain to define what is considered "normal" and "abnormal," iconoclastic or innovative movement cannot materialize.

To add to the complexity, "extroversion and introversion are considered the most stable personality traits that differentiate people from each other and that can be reliably measured. Creative individuals, on the other hand, seem to express both traits at the same time" (Csikszentmihalyi, 1996, p. 65). The notion of "solitary

genius," where artists or mad scientists spend weeks holed up creating work, undoubtedly exists. However, if creativity is stimulated and defined by the world in which we live, the roles of interpersonal connections and human-derived inspiration cannot be underestimated. It is a careful, fine-tuned balance between focused concentration and necessary exchange that breeds productivity and creative work.

Considering this fluctuating exchange with the "normal world," are creative individuals aware and boastful about their seemingly greater complexity in comparison? Because they are equally "aware of the role that luck played in their own achievements" and of their hard work and unique talent, they are typically "remarkably humble and proud at the same time" (Csikszentmihalyi, 1996, p. 68). Csikszentmihalyi considers the "contrast[s] between ambition and selflessness, or competition and cooperation" to be rather synonymous (1996, p. 69). It is important to be relatable, a team player, a diplomat of sorts. But without an inherent ferocity to create and push forward, one cannot traverse innovative ground. That high caliber of ferocity requires a confidence in ability and imagination that stems from unyielding pride and self-belief.

Additionally, the dichotomous concept of androgyny is strongly associated with creative individuals. It is not necessarily limited to the traditional definition, which might imply masculine females and feminine males. In the creative context, individuals are thought to be "psychologically androgynous," resisting typical conformity by their very natures. This comes as no surprise, since "a psychologically androgynous person in effect doubles his or her repertoire of

responses and can interact with the world in terms of a much richer and varied spectrum of opportunities… [possessing] not only the strengths of their own gender but those of the other one, too" (Csikszentmihalyi, 1996, p. 71). If they are simply more complex versions of the typical individual, there is no reason why this complexity would not also apply to gender-specific characteristics.

The causal pathway of the final paradox remains unclear. To be able to simultaneously access both poles of each paradoxical balance is the hallmark of the creative individual. Csikszentmihalyi takes the approach that "the openness and sensitivity of creative individuals often exposes them to suffering and pain yet also a great deal of enjoyment" (1996, p. 73). It is some trait inherent in the creative individual that leads to suffering. He argues that the isolation caused by suffering and the enjoyment caused by rapture and "flow" (a concept developed by Csikszentmihalyi that will be discussed in the subsequent section) allow creative individuals to continue inventing and creating. So long as the pain and the pleasure of the process remain in homeostatic balance, creativity can thrive.

The necessary positive ingredient in the creative balance is *flow*, a concept that Csikszentmihalyi stumbled upon during a series of interviews with creators from a variety of disciplines. He found that "[people] seemed to be doing things that they enjoyed but were not rewarded for with money or fame… What kept them motivated was the quality of experience they felt when they were involved with the activity… It often involved painful, risky, difficult activities that stretched the person's capacity and involved an element of novelty and discovery" (Csikszentmihalyi, 1996, p. 110). He considers this the "optimal experience," and

named it *flow*, "because many of the respondents described the feeling when things were going well as an almost automatic, effortless, yet highly focused state of consciousness" (Csikszentmihalyi, 1996, p. 110). He was amazed that no matter what discipline the creator represented—"engineers and chemists, writers and musicians, businesspersons and social reformers, historians and architects, sociologists and physicians—[they] all agree that they do what they do primarily because it's fun…[yet] many others in the same occupations don't enjoy what they do…Assume that it is not *what* these people do that counts but *how* they do it" (Csikszentmihalyi, 1996, p. 107). Even cross-culturally, he noticed that people described the experience in eerily similar ways, as well as the satisfaction that followed (Csikszentmihalyi, 1996, p. 111). Years after Csikszentmihalyi defined and explored the concept of "flow" through anecdotal and qualitative research, Bass (2007) and many others discussed how flow is important for both creativity and for a balanced and cathartic life.

Where does flow come from and how does it materialize in certain lives and not others? Csikszentmihalyi points to yet another careful balance that differs between "creative and noncreative people. Somewhere along the evolutionary road, some individuals must have developed a nervous system in which the discovery of novelty stimulates the pleasure centers in the brain" (Csikszentmihalyi, 1996, p. 109). People might not seek out novel or innovative connections otherwise. An antagonistic force exists within us, "the force of entropy… it gives us pleasure when we are comfortable, when we relax, when we can get away with feeling good without expending energy" (Csikszentmihalyi, 1996, p. 109). Entropy must balance

out innovation, or "we could easily kill ourselves by running ragged and then not having enough reserves of strength, body fat, or nervous energy to face the unexpected" (Csikszentmihalyi, 1996, p. 109). The opposing motivations keep one another in check, "the least-effort on one side, and the claims of creativity on the other" (Csikszentmihalyi, 1996, p. 110). Creative people fight entropy, tipping the scale, and often dramatically disrupting the balance.

If flow is just about enjoyment, however, then why are risky or unpleasant things often part of the experience? Csikszentmihalyi highlights a big difference between flow and happiness. Flow is about utter involvement, where often conscious thoughts cease to occur. It is difficult to feel happy when engaged in flow, Csikszentmihalyi explains, because the recognition of that happiness is a distraction from the rapture of flow (1996, p. 123). He describes happiness as an indulgence only *after* flow:

> There is the rush of well-being, of satisfaction that comes when the poem is completed or the theorem is proved. In the long run, the more flow we experience in daily life, the more likely we are to feel happy overall. But this also depends on what activity provides flow. Unfortunately, many people find the only challenges they can respond to are violence, gambling, random sex, or drugs. Some of these experiences can be enjoyable, but these episodes of flow do not add up to a sense of satisfaction and happiness over time. Pleasure does not lead to creativity, but soon turns into addiction—the thrall of entropy. So the link between flow and happiness depends on whether the

> flow-producing activity is complex, whether it leads to new challenges and hence to personal as well as cultural growth. (Csikszentmihalyi, 1996, p. 124)

Flow is a key ingredient for creativity. Without it, it is difficult to take away a sense of satisfaction or well-being from any activity, especially a creative one that can involve difficulty and setback. Productivity then becomes a problem.

Csikszentmihalyi's definition of creativity, with these paradoxes in mind, includes an assumption of functionality and balance. Because it is difficult to operationalize and define, a major obstacle in any study about creativity is how to accurately measure it. Using three different creativity measures—one about creative output, and two about creative thought processes—this thesis aims to examine what a creative individual may look like when the productivity assumption is not met. Csikszentmihalyi believes creative individuals are complex, balanced, and productive; but what happens when creative individuals stop being productive? The current study will examine this complex relationship between creativity and functionality (or "balance") in order to better understand the emotionality and well-being of creative individuals.

Defined as intellectual innovation.

Dr. Kenneth Heilman (2005), an expert in cognitive and behavioral neurology, approaches creativity from a different angle, considering many other conceptualizations before concluding his own. Ultimately, for him, creativity is measured and defined by innovation, or "the ability to understand, develop, and express in a systematic fashion novel orderly relationships" (Heilman, 2005, p. 16). The choreographer requires far more creative facility than the dancer, the

playwright more than the actor, and the list goes on. To support this claim, Heilman looks at "procedural memories" in performers, pointing out that "most [musicians] are playing the music that someone else composed and have not successfully composed their own creative pieces… thus, although procedural memories are important in the performance or production of creative works, there is little evidence that they are important in creative innovation" (Heilman, 2005, p. 57). By this conceptualization, it is logical that scientists and inventors may test far more creatively than actors and performers.

In an attempt to operationalize the creative process for the purposes of research and understanding long ago, "Helmholtz (1896) and Wallas (1926) suggested that creativity has four components: preparation, incubation, illumination, and verification," where creators systematically solve a problem in a way that must be recognized in context as new or inventive (Heilman, 2005, p. 15). This inventive problem-solving, or creative innovation, "is based on either the conscious or the unconscious manipulation of knowledge" (Heilman, 2005, p. 17). Without proper preparation and understanding (a sort of cultural context conditioning), creativity has no feasible place. The flipside of that, however, is that "knowledge alone might not be adequate enough for creativity…a prepared mind needs more than knowledge to hear these whispers" of inspiration and possibility (Heilman, 2005, p. 16). Even in the late 19th and early 20th centuries, psychologists and researchers were struggling to define this "extra" trait or strength that sets creative people apart. Sternberg and O'Hara (1999) went a step further to specify "thinking styles, motivation, and environment" as key (Heilman, 2005, p. 17). While

environment certainly plays a factor, the "preparation" stage, which may include thinking styles and motivation, originates within the individual and is therefore difficult to fully understand.

Heilman clearly states that creativity is not a selfless or altruistic act, but rather motivated from something inherently within (2005, p. 134). He considers "creativity" nearly interchangeable with "intellectual beauty." He references Poincare, who "best summarized this principle when he wrote in his book, *La Science et la Methode*, 'Intellectual beauty is sufficient unto itself and only for it rather than for the future good of humanity does the scholar condemn himself to arduous and painful labors" (2005, p. 134). Heilman believes that for the creative person, the beauty of creativity is reward enough, rather than an altruistic outcome. However, the current study, in examining the relationship between creativity and functionality, hypothesizes that in order for creativity to remain functional and sound, some level of altruism, interpersonal connection, or productivity is necessary. If creativity is entirely defined by self-involvement and self-fulfillment, a certain level of functionality is compromised. By Heilman's thinking, innovation is "intellectual beauty" for and from the self, and altruism or functional output is unnecessary. Since the current study utilizes three separate creativity measures, which examine creative thought processes and creative output separately, it will be possible to examine whether creativity always involves productivity, or whether creative thought processes can exist while creative behaviors do not. If the latter can indeed exist in a creative individual, the functionality of him/her will be examined using measures of emotionality and well-being.

Defined as a risk factor.

So far, Csikszentmihalyi has conceptualized creativity as functional when balanced, and Heilman sees the functionality as irrelevant. The question of functionality and productive output is further complicated by "historical and empirical data [that] have linked artistic creativity to depression and other affective disorders" (Akinola & Mendes, 2008, p. 1677). Dr. Kay Redfield Jamison, a professor of Psychiatry at the Johns Hopkins University School of Medicine, has extensively researched this topic through both conducting her own studies and compiling a series of case analyses in her book *Touched with Fire* (1993). In particular, she reflects on the specific relationship between creativity and manic-depressive illness, demonstrating how "writers and artists show a vastly disproportionate rate of manic-depressive or depressive illness" (Jamison, 1993, p. 5). She examines the effect of fluctuating mood states between mania and depression in the lives of many artists, and even reflects on her own illness in her memoir *An Unquiet Mind* (1997). While significant levels of mania and in certain cases even depression often prove useful to artists in creating work, too much can affect productivity and coherence. The causal directionality of the observed link between high creativity and high risk for mood disorder, specifically manic-depressive illness, remains unclear.

Csikszentmihalyi (1996) takes the approach that "artists find inspiration in 'real' life—emotions like love and anxiety, events like birth and death, the horrors of war, and a peaceful afternoon in the country" (p. 85). He is implying that the process begins with inherent creativity, laid out by his paradoxical balances theory, that initiates and drives emotionality. By this notion, it is understandable that he

associates creativity with productivity by definition. Jamison (1993), on the other hand, takes the approach that causal direction could go the other way; temperament might drive creativity. She describes this "artistic temperament" defined by "fierce energy, high mood, and quick intelligence; a sense of the visionary and the grand; a restless and feverish temperament" as the "fiery aspects of thought and feeling that initially compel the artistic voyage… [and] carry with them the capacity for vastly darker moods, grimmer energies, and occasionally, bouts of 'madness'" (Jamison, 1993, p. 2). Jamison points out differences in productivity among creative individuals, relating them to "the relationship between moods and imagination" that varies from person to person (1993, p. 5). Emotionality is essential for "igniting thought, changing perceptions, creating chaos, forcing order upon chaos, and enabling transformation" (Jamison, 1993, p. 5). Just as Csikszentmihalyi discusses the need to balance responsibility and irresponsibility, ferocity and control, Jamison emphasizes the very thing that is important for eliciting creativity—emotionality—can also induce the demise of its productivity and functionality.

Though Jamison generally implies overall "temperament-to-creative ignition" directionality, she concedes that the strongest evidence we have is purely correlational. In a 2011 study, Kyaga et al. demonstrated that "individuals with bipolar disorder were significantly overrepresented in creative professions compared with the control group" (376). It has also been shown through empirical research that "studies of attempted suicide in manic-depressive patients show that between one-fourth and one-half attempt suicide at least once" (Jamison, 1993, p. 42). Suicide is not the only heightened risk factor, as "the lifetime prevalence rate of

drug abuse [in manic-depressive patients] is 41 percent; this is far higher than unipolar depressed patients or the general population (18 and 6 percent, respectively)" (Jamison, 1993, p. 39). Findings continue to show a stronger connection between creativity and the mania component rather than the depression component, with one clinical study pointing out that "the majority of their bipolar [manic-depressive] and cyclothymic patients who abused cocaine stated that they were not self-medicating depression; rather, they were attempting to lengthen or intensify the euphoric effects of mild mania" (Jamison, 1993, p. 39). Before these relationships are further explored, some clinical definitions must be delineated.

The following definitions come from Jamison's (1993) paraphrasing of the Diagnostic and Statistical Manual IV. She explains that **manic-depressive illness** "encompasses a wide range of mood disorders and temperaments… vary[ing] in severity from **cyclothymia**—characterized by pronounced but not totally debilitating changes in mood, behavior, thinking, sleep, and energy levels—to extremely severe, life-threatening, and psychotic forms of the disease" (Jamison, 1993, p. 13). It periodically shifts between **major depression symptoms,** which can include "apathy, lethargy, hopelessness, sleep disturbance (sleeping far too much or too little), slowed physical movement, slowed thinking, impaired memory and concentration, and a loss of pleasure in normally pleasurable events…suicidal thinking, self-blame, inappropriate guilt, [and] recurrent thoughts of death," and **mania or hypomania (mild mania) symptoms,** which can include elevated mood, increased energy, decreased sleep need, pressured speech, "inflated self-esteem," "poor judgment," excessive spending, "impulsive involvements in questionable

endeavors, reckless driving, extreme impatience, intense and impulsive romantic or sexual liaisons, and volatility" (Jamison, 1993, p. 13). The dangerous nature of mania appears to be linked to the *extreme* or the exaggerated; by definition, **hypomania** ("mild mania") should exclude that. Is it even reasonable to consider hypomania a "bad" or "dysfunctional" thing? When considering creativity, it is interesting to note that "the perceptual and physical changes that almost always accompany hypomania… generally reflect the close and subtle links that exist between elevated mood, a sense of well-being, expansive and grandiose thought, and intensified perceptual awareness" (Jamison, 1993, p. 27 – 28). These elements are eerily reminiscent of those thought to characterize successfully creative individuals.

The Functionality of Creativity

The "inverted U" hypothesis.

Though the creativity-bipolar disorder relationship remains directionally ambiguous, Murray and Johnson (2010) were able to articulate a significant emerging pattern. They explain that "the relationship between creativity and [manic-depressive illness] appears to be non-linear" (Murray and Johnson, 2010, p. 723). When examining "lifetime creative accomplishments," they found "milder forms of [manic-depressive illness]" tend to be associated with greater productivity and achievement. The idea that mild mania, clinically referred to as *hypomania*, may be helpful for creativity is "consistent with the idea that vulnerability to mania is related to creativity, but that more severe expressions of symptoms may interfere with lifetime accomplishment (the inverted U hypothesis)" (Murray and Johnson,

2010, p. 723). The theory then unfolds that creativity related to hypomania can be not only functional (the peak of the "inverted U"), but also rather useful. However, once the level of hypomania reaches a certain threshold (the right arm of the "inverted U"), creativity can then become dysfunctional and harmful. Before the feasibility and applicability of this hypothesis is explored, the "dark" and "positive" sides of creativity are discussed.

The "dark side."

Kyaga et al. (2012), after reviewing the immense amount of empirical and anecdotal research on the link between creativity and mental illness, decided to specifically investigate the aspects of the relationship with a large dataset. They examined mental illness overrepresentation in creative professions, the differences in authors specifically, and the familial nature of illness and creativity as related to the "inverted U" hypothesis. It was a 40-year Swedish population study pooling from various national registers to collect data. Among the various pathologies they examined in connection to creativity, manic-depressive illness was the only disorder from which individuals in creative professions were significantly more likely to suffer than the general population (Kyaga et al., 2012, p. 6). They found this was also true in the subgroup of authors. Strong familial associations of creative professions and manic-depressive illness helped to support the "inverted U" hypothesis, because functional relatives of those with manic-depressive illness were often succeeding in "overall creative professions" (Kyaga et al., 2012, p. 6). Though there is no way to test this at the present time, it is possible that some nonclinical degree of hypomania could potentially promote creativity. Whichever way the

directionality may run, evidence increasingly points to a non-linear model where the darkness and risk for mental illness—specifically manic-depressive—is inextricably linked to high creativity.

Whether or not one accepts creativity as an inherent trait, it is important to recognize the "relatively consistent set of core characteristics of creative individuals… includ[ing] introversion, emotional sensitivity, openness to experience, and impulsivity" (Akinola and Mendes, 2008, p. 1677). These are variables one should consider testing in any creativity study. Akinola and Mendes (2008) sought a physiological measure of creativity-associated emotional responses based on vulnerability and rejection. They hypothesized that "engendering high-arousal negative emotions" through social rejection "would bring about increased artistic creativity and that this effect would be exacerbated among those with lower levels of [the hormone] DHEAS—an index of affective vulnerability" (Akinola and Mendes, 2008, p. 1678). DHEAS physically "measures adrenal steroid release commonly implicated in depression" (Akinola and Mendes, 2008, p. 1678). They found significantly lower levels of DHEAS were correlated with more intense negative emotional responses and affective vulnerability. People experiencing less emotionality were more likely to be vulnerable, implying that a certain level of emotionality is related to greater resilience. They also found that "social rejection resulted in greater artistic creativity than did the social approval or nonsocial situations" (Akinola and Mendes, 2008, p. 1683). This supports the thought that struggle and creativity are closely associated. The part that remains unclear is how much struggle is too much struggle, causing creativity to take a dysfunctional turn.

The "positive side."

The "inverted U" hypothesis is supported by Jamison's research, which suggests that perhaps mild levels of mania (or *hypomania*) could be not only related to, but also helpful for, high creativity. Jamison emphasizes that one of the biggest compliance issues in treating manic-depressive illness, both in the context of her illness and in the context of those whom she has studied, is that lithium has been known to dampen creativity. In *Touched with Fire*, she references studies where "some patients on lithium reported feeling that life was flatter and more colorless… and that some of them missed their hypomanic periods" (Jamison, 1993, p. 242). People, specifically creators, are reluctant to remain on medication "because they miss the highs or the emotional intensity associated with their illness, or because they feel that drug side effects interfere with the clarity and rapidity of their thoughts or diminish their levels of enthusiasm, emotion, and energy" (Jamison, 1993, p. 7-8). Jamison (1997) describes this experience powerfully in her own memoir:

> These fiery moods were, at least initially, not all bad: in addition to giving a certain romantic tumultuousness to my personal life, they had, over the years, added a great deal that was positive to my professional life. Certainly, they had ignited and propelled much of my writing, research, and advocacy work. They had made me impatient with life as it was and made me restless for more. But always, there was a lingering discomfort when the impatience or ardor or restlessness tipped over into too much anger. (Jamison, 1997, p. 122)

That "tip" is considered the peak of the "inverted U." Before the threshold is reached, however, Jamison lists many "positive aspects of the illness that can arise during the milder manic states: heightened energy and perceptual awareness, increased fluidity and originality of thinking, intense exhilaration of moods and experience, increased sexual desire, expansiveness of vision, and a lengthened grasp of aspiration," all of which Jamison is careful to point out are "highly addictive and difficult to give up," yet incredibly helpful to creativity (1997, p. 128).

In their article, Murray and Johnson (2010) go on to explain that "consistent with a link between [manic-depressive illness] and creativity, hypomanic traits in healthy samples have been found to predict self-rated creativity, divergent thinking fluency, and a biographical measure of spontaneous everyday creative achievement" (p. 723). Is creativity promoted by high emotionality such as hypomania? Is it possible that too *little* emotionality could be reflective of low levels of creativity (the left arm of the "inverted U")?

The existence of potentially helpful mild mania (or *hypomania*) has been researched in college students. Meyer et al. (2004) studied goal appraisals and bipolar disorder vulnerability in 464 college students, where positive goal appraisals meant viewing a goal "as likely to be attained, enjoyable, controllable, and not difficult or stressful" (p. 173). They hypothesized that manic symptoms and positive attitudes/reinforcement toward goals might be strongly associated with one another. They found this to be true and were able to demonstrate that "participants who endorsed a positive/energized mood rated their goals as more enjoyable and less stressful/difficult, supporting the view that euphoric moods

indicate positive goal appraisals" useful for achievement (Meyer et al., 2004, p. 180). While "investment in new goals" is considered a positive thing, it "has also been found to predict increases in manic symptoms" (Meyer et al., 2004, p. 181). Their results supported this previous finding, "congruent with a model of excessive goal engagement as a risk variable for manic symptoms" (Meyer et al., 2004, p.181). Not only were their assertions about a creativity-mania link supported, but they also found that in their "non-clinical sample, the relations between hypomanic symptoms and goal appraisals on the one hand versus positive moods and goal appraisals on the other were virtually indistinguishable" (Meyer et al, 2004, p. 180). The sample population in this particular study, currently enrolled college students, was nonclinical, rendering this a normative sample. If mild mania is nearly identical to positive mood in a nonclinical sample, but full-blown mania is destructive in a clinical sample, it is important to study where emotionality takes a turn for the worse. This could have major implications in the functionality of creativity and in the treatment of mental illness. Hypomania is just one way to measure emotionality's critical role in creative achievement, a microcosm of the functional-dysfunctional creativity divide.

When is Creativity Dysfunctional? The Current Study

A creative individual is a complex individual. Consider Csikszentmihalyi's view that creative individuals do not hold "some position at the midpoint between two poles," nor are they "wishy-washy, so that [they are] never very competitive or very cooperative…creative persons definitely know both extremes and experience both with equal intensity and without inner conflict" (1996, p. 57). The complexity

mechanism of the creative individual mirrors the mechanism of fluctuating mood states in manic-depressive illness, operating between two extremes. Csikszentmihalyi (1996) carefully explained the complex paradoxical balances involved in the successfully creative individual, and how easily an imbalance can lead to dysfunction. For example, an imbalance of physical explosiveness and calm can lead to hypersexuality, which is often reckless and harmful. If passion exceeds objectivity, the "fire" he refers to can no longer be controlled, and the "damage" of mental dysfunction erupts. This can manifest as a lack of productivity, and as a clear lack of well-being and mental health. Creativity takes a dysfunctional turn when emotionality is thrown out of balance. However, when exactly this occurs is not yet known.

The current study examines creativity in a normative college sample. At a liberal arts institution such as Connecticut College, innovative thinking, forming connections, and creative expression are considered important and arguably essential in order to excel. The goal is to better understand how creativity is related to different aspects of emotionality and well-being, and if it is possible to identify where creativity starts to take a turn toward dysfunction. It is a unique study, because it considers creativity through different lenses, recognizing how difficult it is to measure. It utilizes three different measures for creativity with different emphases, ranging from creative output to creative thought processes. This allows each creativity component to be considered separately.

First, the relationship between creativity and hypomania will be examined. The research indicates strong ties between creativity and manic-depressive illness

in clinical samples, so it is important to examine the relationship between creativity and hypomania in a nonclinical sample to better examine the functionality of creativity. It is hypothesized that creativity will have a modest positive relationship with hypomania. The study will next examine creativity's relationship to other measures of emotionality and well-being, which include engagement in flow, mental illness history/risk, vulnerability, resilience, and impulsivity. These measures were carefully chosen to better determine the profiles of highly creative individuals and how they relate to the balance of emotionality. It is hypothesized that hypomania and creativity will be related to different aspects of emotional functioning, and that the relation between creativity and emotional functioning will depend of levels of hypomania. It is hypothesized that those high in hypomania but low in creativity will perform more negatively on the emotionality and well-being measures. However, because this is a nonclinical sample, it is expected that few individuals will be found to be high in hypomania but low in creativity. Since creativity has been largely defined by creative output, the current study hypothesizes that those who are high in creative thought and hypomania but low in creative behavior output will be less functional than those who are also high in creative output. The study aims to investigate how balanced or unbalanced these various emotionality and well-being factors are in relation to creativity in order to better understand where and how creativity takes a dysfunctional turn.

"Fire, by its nature, both creates and destroys" (Jamison, 1997, p. 123).

Method

Participants

The participants were 84 Connecticut College students between the ages of 18 and 22, 24 identifying as male, 57 as female, and three as "other." Recruitment took place using two different methods. Introductory psychology students were offered 60 minutes of research credit for their participation. The study took a full 60 minutes to complete, largely due to the *Remote Associates Test* that requires at least 20 minutes (see Appendix B). Additionally, flyers were posted around campus advertising the study, with contact information for participation. Students who chose to participate through this recruitment method received food (snacks) as reimbursement for their time. The flyer read:

HOW CREATIVE ARE YOU? I am an Honors Thesis psychology major interested in studying your creativity and mental health. Participate in my Honors Thesis Study for 60 minutes, and receive FREE FOOD! Contact me, Nora Loughry, at nloughry@conncoll.edu to participate.

Participants who were not part of the PSY 101/102 participant pool received a food incentive only (n = 33). Participants who were part of the PSY 101/102 participant pool received research credit only (n = 51). All participants were given the same questionnaires. See below for details on the measures.

Measures

Remote Associates Test. The first questionnaire, the *Remote Associates Test*, was used as the first of three scales to measure the participant's level of creativity (see Appendix B). According to Gatta (1964), "the capacity to develop

unusual ideas which also meet some criterion of adaptiveness is central to many definitions of creativity, [and] Mednick measures one aspect of this creativity by the Remote Associates Test… [in which] the subject is asked to find a fourth word which is related to three other words" (p. 183). An example is provided before beginning the test, and the first three words are: paint, doll, cat. The fourth word and correct answer is "house," because the following combinations can be formed: house paint, doll house, house cat. Mednick (1963), who created the measure, tested its validity in a study of creativity in graduate students and found that RAT scores were significantly positively correlated with observed creativity scores by student advisors, $p < .005$ (p. 265). Datta describes another reliability study conducted by Mednick in 1962, examining the relationship between "faculty ratings and RAT scores for 21 design students" that found a +.70 correlation (p. 183). The test has 30 items, and the answers were scored as either correct or incorrect. The number of items attempted was also scored. This measures one dimension of creative thought processes, with a Cronbach's alpha = .93 obtained in this study.

Creative Behavior Inventory-Short Form. In their article, Murray and Johnson (2010) conceptualize different ways to measure creativity, defining it sometimes as "a personal attribute often measured simply as occupation" (p. 722). The second of three scales to measure participant creativity, the *Creative Behavior Inventory-Short Form*, was administered to measure creative output (see Appendix C). It differs from the other two creativity measures in that it does not measure creative thought processes, only creative product. Dollinger, who adapted Hocevar's Creative Behavior Inventory of 90 items from 1979 to the 28-item

Creative Behavior Inventory-Short Form, noted that "a checklist of self-reported accomplishments is one of the most accepted approaches to measuring creativity in general populations (2011, p. 332). He chose the 28 items, because they had "high item-total correlations" (p. 332). A strong correlation exists between the original 90-item form and the adapted 28-item form, $p < .001$, and Dollinger reports a strong internal consistency (Cronbach's alpha = .92). In this study, a Cronbach's alpha of .84 was found. Examples of the items include: "Received an award for an artistic accomplishment" and "Kept a sketch book." Each item was scored on a Likert scale from 1 to 4: *1 = never did this, 2 = did this once or twice, 3 = did this 3 to 5 times, 4 = did this more than five times*, and the numbers were totaled for a creative behavior score.

Heuristic Problem-Solving Questionnaire. Haller and Courvoisier (2010), in their article "Personality and Thinking Style in Different Creative Domains," touch on different domains of creativity, suggesting that "problem-finding or heuristic thinking may be one important ingredient to become or be creative" (p. 150). Heuristics are defined as "rules for finding solutions; they do not guarantee a solution but they help to find it" (p. 150). Just as the *Remote Associates Test* measures the ability to associate and connect creatively, Haller and Courvoisier's *Heuristic Problem-Solving Questionnaire* examines creative approaches to problem solving (see Appendix D). The questionnaire consists of 30 items. Examples include: "I try to solve problems in new ways" and "I am always interested to learn a new game that gives me something to think about." Each item was scored on a Likert scale from 1 to 4: *1 = not at all, 2 = somewhat, 3 = mostly, 4 = completely*. This

questionnaire was originally published by Groner and Groner in 1990 who "did not provide information on the internal consistency… [but Haller and Courvoisier] verified the reliability of all scales using Cronbach's alpha" (p. 151). In this study, a Cronbach's alpha = .78 was found. This scale is the third of three scales to measure creativity in this study. Each represents a different creativity domain that exists as its own variable, though it is expected that they will be moderately correlated with each other because they represent different dimensions of the same construct.

Work Related Flow Inventory. Next, in order to measure engagement in flow, the *Work Related Flow Inventory* was administered, which was slightly modified for this study (see Appendix E). The "flow-dimensions" are assessed by the measure: absorption, enjoyment, and intrinsic motivation. According to reliability testing, "the Cronbach's alpha was high for work enjoyment (on average around .90), acceptable for absorption (around .80), and satisfactory for intrinsic work motivation (around .75)" (Bakker, 2008, p. 402). Overall, in this study, the measure had a Cronbach's alpha = .91. There are 14 items in total, which are scored on a 7 point Likert scale: *1 = never, 2 = almost never, 3 = sometimes, 4 = regularly, 5 = often, 6 = very often, 7 = always*. Because this measure is used to assess flow in the workplace, and this study aims to assess the amount of flow in an individual's life, "work" was replaced with "your favorite activity." For example, instead of the statement, "When I am working, I think about nothing else," it reads, "When I am doing this activity, I think about nothing else." In this way, the measure could examine the amount of flow, if any, present in the participant's life. Since "researchers have indeed found evidence for flow during the performance of a large

number of different activities, including sports (e.g., golf, athletics and swimming), creative arts, and playing music," this modification appears not to have affected the reliability of the measure (p. 400).

Personal Mental Health and Family History Questionnaire. Following the flow inventory, participants answered a series of questions regarding both their personal and familial mental health histories (see Appendix F). There are 14 questions in total. Since the questions are very personal, participants were notified in the informed consent that there would be personal questions regarding their mental health histories. In Jamison's work, she emphasizes importance of interacting factors such as personal (Questions 1 – 6) and family psychiatric history (Question 14), suicidal ideation/attempts (11 – 13), self-harm (Questions 9 & 10), and substance abuse (Questions 7 & 8). They influence the risk that creativity will be accompanied by dysfunctional tendencies, though the directionality still remains unclear. It is important to consider these factors as variables in this study, and to gather a full personal and family mental health history since these are also known risk factors for developing mental illness, or more broadly, dysfunction. See *Ethical Issues* below for ethical considerations regarding this questionnaire.

Hypomanic Personality Scale. Jean and Loren Chapman's *Hypomanic Personality Scale* was administered next in order to measure levels of hypomania (see Appendix G). The scale is a series of 48 statements, and participants circled "True" or "False," depending on whether or not the statement applied to them. Examples include: "Sometimes ideas and insights come to me so fast that I cannot express them all" and "I expect that someday I will succeed in several different

professions." According to reliability testing done at the Chapmans' "NIMH-supported research project at the University of Wisconsin-Madison…[with] norms based upon Caucasian undergraduate students," the Cronbach's alpha was strong, α = .87 (Kwapil, 2002, p. 2). Its Cronbach's alpha was reconfirmed with reliability testing in the current study, Cronbach's alpha = .87. Not only is the measure reliable, but it was also tested in a college population demographically similar to Connecticut College.

Vulnerability and Resilience Measures. Galvez, Thommi, and Ghaemi (2011) uncovered numerous positive characteristics associated with manic-depressive illness, including "spirituality, empathy, creativity, realism, and resilience." This study aims to examine the elements of resilience (positively associated) and vulnerability (negatively associated) utilizing Smith and Zautra's (2008) *Vulnerability and Resilience Measures* (see Appendix H). The scale consists of 32 vulnerability component items and 31 resilience component items. The first portion is scored on a 7 point Likert scale: *1 = never, 2 = almost never, 3 = sometimes, 4 = regularly, 5 = often, 6 = very often, 7 = always*. The second portion is scored on a 4 point Likert scale: *1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree.* Examples include: "I worry about what others think of me" and "I can tolerate frustration better than most." Each question is coded as associated with one of the following "trait [or] state measures": acceptance coping, anxiety, active coping, depression, emotionality, interpersonal sensitivity, optimism, pessimism, positive reinterpretation and growth, and purpose in life. For each of these subscales, the Cronbach's alphas reported were .75, .93, .76, .91, .76, .87, .71, .77, .73,

and .88, respectively. The vulnerability and resilience scores were used as emotionality/well-being factors in the subsequent analyses. In this study the Cronbach's alphas were .94 for vulnerability, and .89 for resilience.

UPPS Impulsive Behavior Scale. The final scale was Whiteside and Lyman's (2009) *UPPS Impulsive Behavior Scale*, with subcategory factors of premeditation (11 items), urgency (12 items), sensation seeking (12 items), and perseverance (10 items) (see Appendix I). Items are scored on a 4 point Likert scale: *1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree.* Examples include: "I tend to give up easily" and "I often get involved in things I later wish I could get out of." This represents the final emotionality/well-being variable that will be measured against creativity in the current study, with a Cronbach's alpha of .90 obtained in this study.

Demographics. The participants then received a demographics questionnaire for subsequent data analysis to account for any trends in gender, ethnicity, sexuality, etc. (see Appendix J).

Procedure

The study was conducted in a classroom in Bill Hall. Participants were Psychology 101 and 102 students participant slots. Initially, the participants signed an informed consent form (see Appendix A). Next, each measure was administered in the order detailed above, and finally a debriefing form with contact information and resources in the event that they develop any questions or concerns (Appendix K). See below for details on debriefing.

Ethical Issues

Before participants left the study, Questions 10 – 13 of the *Personal Mental Health and Family History Questionnaire* were scored. If a participant indicated yes to any of the past suicidal ideation/attempt questions (Questions 11 – 13), they were given an additional debriefing form (see Appendix L). If a participant expressed *current* ideation/recent attempts (Question 10), Student Counseling Services or a dean were notified. They also received an additional debriefing form (see Appendix M). All of this information was included in the informed consent.

Results

Descriptive statistics for the creativity measures, hypomania, and the dependent variables are provided (*see Table 1*). Most people did poorly on the *Remote Associates Test*, one of two measures for creative thought processes, where the highest score was 27 out of 30, but the mean was 7.31. Because the ranges of each creativity measure differed so greatly, they were standardized for subsequent analyses. Scores on the hypomania inventory ranged from 3 to 39, with a mean of 20.01.

General correlations between creativity measures and psychological factors

A series of Pearson product-moment correlations was conducted between creativity measures, hypomania, and each psychological wellbeing factor (*see Table 2*). Gender differences between males and females were also examined, but the only significant relationship found was with the *Heuristic Problem Solving Questionnaire*, where males (*mean* = 88.38) scored significantly higher than females (*mean* = 81.51), $r(79) = -0.30$, $p < .01$. Many of the correlations were significant. Interestingly, the *Remote Associates Test* was neither correlated with these

measures nor with the other measures in the study and was subsequently dropped from further analysis. However, both the *Creative Behavior Inventory* and the *Heuristic Problem Solving Questionnaire* were correlated with multiple variables. Because the *Creative Behavior Inventory* and the *Heuristic Problem Solving Questionnaire* are theoretically measuring different dimensions of the same construct (creativity), it was expected that they would be correlated, which they were, $r(82) = 0.34$, $p < .01$. As expected, these two measures were also correlated with many of the emotionality and well-being measures. Both the *Creative Behavior Inventory* and the *Heuristic Problem Solving Questionnaire* were positively correlated with flow, $r(82) = 0.27$, $p = 01$, and $r(82) = 0.41$, $p < .01$, respectively. In addition, there was also positive correlation between the *Creative Behavior Inventory* and resilience, $r(82) = 0.37$, $p < .01$. The *Heuristic Problem Solving Questionnaire*, however, was also correlated with impulsivity, $r(82) = 0.29$, $p < .01$, and hypomania, $r(82) = 0.47$, $p < .01$.

More correlations were found between the emotionality and well-being variables. Hypomania was correlated with both amount of flow, $r(82) = 0.22$, $p = .04$, and with impulsivity, $r(82) = 0.46$, $p < .01$. There was a negative correlation between vulnerability and resilience, $r(82) = -0.52$, $p < .01$. Because they were put forth within the same measure as opposing processes, this confirms the assertion in practice. There was also a negative correlation between resilience and impulsivity, $r(82) = -0.48$, $p < .01$ (*see Table 3*).

Measuring self-harm and risk. Two variables were created after the data were collected in order to assess mood and self-harm risk. First, “suicidality” was

Table 1

Descriptive Statistics for All Variables

	Min.	Max.	Range	Mean	Std. Deviation
RAT	0	27	27	7.31	4.04
CBI	31	95	64	55.81	12.20
Heuristic P.S.	60	106	46	83.67	10.26
Hypomania	3	39	36	20.01	8.44
Flow	28	91	63	74.36	12.29
Vulnerability	50	158	108	96.30	22.78
Resilience	62	114	52	96.08	12.45
Impulsivity	69	160	91	104.24	18.07
Suicidality	0	4	4	.46	.88
OverallRisk	0	30	30	10.76	9.22

Note: n = 84. *OverallRisk = Combination of suicide, mood, and substance use history*

Table 2

Pearson Correlations between Creativity, Hypomania, and Dependent Variables

Hypomania and Dependent Variables	Creativity Variables		
	CBI	RAT	Heuristic P.S.
Hypomania	.14	-.03	.47**
Flow	.27*	.05	.41**
Vulnerability	-.14	-.01	-.20
Resilience	.37**	-.01	.10
Impulsivity	-.08	-.03	.29**
Suicidality	-.02	.07	.15
OverallRisk	-.17	.16	.03

Note: n = 84. *p < .05. ** p < .01. *OverallRisk = Combination of suicide, mood, and substance use history. CBI = Creative Behavior Inventory. RAT = Remote Associates Test. Heuristic P.S. = Heuristic Problem Solving Questionnaire.*

scored from 0 to 5, based on the yes/no answer to questions 9 through 13 on the psychological history questionnaire. These were questions such as, "Have you ever intentionally harmed yourself in the past," and, "Have you ever made suicidal plans?" Another variable, which combined suicide, mood, and substance use history (or an "overall risk index"), was created to take more information into account from the mental healthy history questionnaire. It has a maximum of 32. First, it involves a mood index derived from the questionnaire. Participants received a 25 if they had a mood diagnosis with immediate family history of mental illness, a 20 if they had a mood diagnosis without immediate family history, a 15 if they had other diagnoses, symptoms, or concerns with immediate family history, a 10 if they had other diagnoses, symptoms, or concerns without immediate family history, a 5 if they had no diagnoses, symptoms, or concerns but did have an immediate family history, and a 0 if they had none of the above. Suicidality, with a maximum of 5 was then added to the mood index. Finally, if participants answered "yes" to questions 7 or 8, "Have you ever felt concerned about your substance use," and, "Has anyone in your life ever expressed concern about your substance use," they were given an additional point for each. Because "Suicidality" is included in the combined risk index, multicolinearity renders their relationship in the correlational tables irrelevant.

"Suicidality" had significant relationships with four related factors: hypomania, $r(82) = .31$, $p < .01$, vulnerability, $r(82) = .37$, $p < .01$, resilience, $r(82) = -.35$, $p < .01$, and impulsivity, $r(82) = .32$, $p < .01$. Not surprisingly, the "overall risk index" had significant relationships with the same variables. The overall risk index had a slightly stronger relationship with vulnerability, $r(82) = .51$, $p < .01$,

Table 3

Pearson Correlations between Hypomania and Dependent Variables

	Hypomania and Dependent Variables						
	Hypomania	Flow	Vulnerability	Resilience	Impulsivity	Suicidality	OverallRisk
Hypomania	---						
Flow	.22*	---					
Vulnerability	.18	-.11	---				
Resilience	.00	.21	-.52**	---			
Impulsivity	.46**	-.05	.21	-.48**	---		
Suicidality	.31**	-.08	.37**	-.35**	.32**	---	
OverallRisk	.25*	-.10	.51**	-.37**	.34**	.62**k	---

Note: n = 84. *p < .05. ** p < .01. *k* = Discounted due to multicolinearity by nature of variable.
OverallRisk = Combination of suicide, mood, and substance use history.

resilience, $r(82) = -.37$, $p < .01$, and impulsivity, $r(82) = .34$, $p < .01$, but a slightly weaker one with hypomania, $r(82) = .25$, $p = .02$.

Creative Thought Processes and Hypomania as Predictors of Dependent Measures

Flow. Regression analyses were conducted to examine the predictive utility of hypomania and the creativity measures (*see Tables 4 & 5*). Gender did not add predictive utility to any of the following models. All dependent variables were examined. First, hypomania and the creativity measures were centered by subtracting the mean in order to avoid multicolinearity with the interaction term. The first regression model examined creative thought processes (as measured by the *Heuristic Problem Solving Questionnaire*, henceforth), hypomania, and their interaction as predictors of flow. The overall model was significant in predicting flow, accounting for a significant portion of the variance, $R^2 = .17$, $F(3,83) = 5.48$, $p < .01$. However, creative thought processes was the only predictor that independently contributed to flow, $\beta = .40$, $t(83) = 3.41$, $p < .01$. Though hypomania was not a significant predictor in this model, there was a positive relationship found between hypomania and flow in bivariate correlations. These findings indicate that once creativity was introduced into the model, hypomania was no longer predictive.

Vulnerability. The next model examined creative thought processes, hypomania, and their interaction as predictors of vulnerability. The model overall was significant in predicting vulnerability, accounting for a significant portion of the variance in vulnerability, $R^2 = .14$, $F(3,83) = 5.41$, $p < .01$. Both creative thought

Table 4

Heuristic P.S. and Hypomania as Predictors of Dependent Variables

Dependent Variables	Independent Variables				
	Heuristic P.S. β	Hypomania β	Heuristic P.S. x Hypomania β	F	R^2
Flow	.40**	.04	.02	5.48**	.17
Vulnerability	-.35**	.37**	.18††	5.41**	.14
Resilience	.11	-.08	-.26*	2.35††	.08
Impulsivity	.11	.42**	.13	8.14**	.23
Suicidality	.00	.31*	.06	2.93*	.10
OverallRisk	-.10	.31*	.16	2.84*	.10

Note: df = 83. *p < .05. ** p < .01. ††p <.10. *Heuristic P.S. = Heuristic Problem Solving Questionnaire. OverallRisk = Combined suicide, mood, and substance use history.*

Table 5

CBI and Hypomania as Predictors of Dependent Variables

Dependent Variables	Independent Variables				
	CBI β	Hypomania β	CBI x Hypomania β	F	R^2
Flow	.23*	.17	-.16	4.14**	.13
Vulnerability	-.17	.21††	.00	1.80	.06
Resilience	.38**	-.05	.00	4.40**	.14
Impulsivity	-.15	.47**	-.03	8.00**	.23
Suicidality	-.06	.33**	.07	3.12*	.11
OverallRisk	-.20††	.28*	.05	3.12*	.11

Note: df = 83. *$p < .05$. ** $p < .01$. ††$p < .10$. *CBI = Creative Behavior Inventory. OverallRisk = Combined suicide, mood, and substance use history.*

processes, β = -.35, t(83) = -3.03, p < .01, and hypomania, β = .37, t(83) = 3.18, p < .01, independently and significantly predicted vulnerability. The interaction term was marginally significant, implying that the contributing effects of creative thought processes and hypomania are greater than the sum of independent parts, β = .18, t(83) = 1.75, p = .08. In order to graphically represent this model, hypomania was split at the median into "low" (green squares) and "high" (blue circles). It is shown that the relationship between creative thought processes and vulnerability depends on hypomania (*see Figure 1*). There was a negative relationship between vulnerability and creative thought for those with low hypomania. However, there was no linear relationship between vulnerability and creative thought for those with hypomania. The interaction suggests that as hypomania increases, the relationship between creativity and the well-being measure becomes nonlinear.

Resilience. This model examined creative thought processes, hypomania, and their interaction as predictors of resilience. The overall model was marginally significant in predicting resilience, R^2 = .08, F(3,83) = 2.35, p = .08. While neither creative thought nor hypomania independently contributed to resilience, their interaction was a significant predictor, β = -.26, t(83) = -2.43, p = .02. Plots of regressions lines for high versus low hypomania groups revealed that there was a positive relationship between creative thought processes and resilience for those low in hypomania. For those with high hypomania, the relationship begins linear and then takes a negative turn. This shows that those with high hypomania experienced a dip in resilience as creative thought increased (*See Figure 2*).

Impulsivity. This subsequent model looked at creative thought processes, hypomania, and their interaction as predictors of impulsivity. The model overall was significant in predicting impulsivity, accounting for a significant portion of the variance in impulsivity, $R^2 = .23$, $F(3,83) = 8.14$, $p < .01$. Neither creative thought processes nor the interaction term was significant, but hypomania was a significant predictor of impulsivity, $\beta = .42$, $t(83) = 3.78$, $p < .01$. Though creative thought process was not a significant predictor in this model, there was a positive relationship found with flow in bivariate correlations. However, once hypomania was introduced into the model, creative thought processes were no longer predictive.

Suicidality. The next model examined creative thought processes, hypomania, and their interaction as predictors of suicidality. The model overall was significant in predicting suicidality, $R^2 = .10$, $F(3,83) = 2.93$, $p = .04$. Much like the model for impulsivity, neither creative processes nor the interaction term was significant, but hypomania was a significant predictor of suicidality, $\beta = .31$, $t(83) = 2.60$, $p = .01$.

Overall Risk Index. The final creative thought model examined creative thought processes, hypomania, and their interaction as predictors of the overall risk index (combined suicide, mood, and substance use history). The model was significant in predicting overall risk, accounting for a significant portion of variance, $R^2 = .10$, $F(3,83) = 2.84$, $p = .04$. Much like the model for both suicidality and impulsivity, neither creative processes nor the interaction term was significant, but

hypomania was a significant predictor of the overall risk index, $\beta = .31$, $t(83) = 2.58$, $p = .01$.

Creative Behavior and Hypomania as Predictors of Dependent Measures

Flow. The next set of analyses used creative behavior (as measured by the *Creative Behavior Inventory*, henceforth) instead of creative thought processes to predict dependent variables in models that were otherwise parallel to the models just reported. These models include creative behavior, hypomania, and their interaction as predictors, and in this first analysis, flow was the dependent variable. The model overall was significant, accounting for a significant portion of the variance, $R^2 = .13$, $F(3,83) = 4.14$, $p < .01$. As in the model using creative thought processes, creative behavior was the only independent predictor of flow, $\beta = .23$, $t(83) = 2.22$, $p = .03$.

Vulnerability. The following model examined creative behavior, hypomania, and their interaction as predictors of vulnerability. The model was not significant, $R^2 = .06$, $F(3,83) = 1.80$, $p = .15$. This contrasts with the model using creative thought processes, where creativity, hypomania, and their interaction all predicted vulnerability.

Resilience. This model examined creative behavior, hypomania, and their interaction as predictors of resilience. The model was significant, accounting for a significant portion of the variance, $R^2 = .14$, $F(3,83) = 4.40$, $p < .01$. However, creative behavior was the only significant predictor of resilience, $\beta = .38$, $t(83) = 3.62$, $p < .01$. This contrasts with the creative thought processes analysis, where

there were no main effects, but an interaction showing that those with high hypomania and high creative thought experience a dip in resilience.

Impulsivity. The next model examined creative behavior, hypomania, and their interaction as predictors of impulsivity. The model was significant, accounting for a relatively large portion of the variance, $R^2 = .23$, $F(3,83) = 8.00$, $p < .01$. As with the creative thought processes model, hypomania was the only significant predictor of impulsivity, $\beta = .47$, $t(83) = 4.75$, $p < .01$.

Suicidality. This model tested creative behavior, hypomania, and their interaction as predictors of suicidality. The model overall was significant, accounting for a significant portion of the variance, $R^2 = .11$, $F(3,83) = 3.12$, $p = .03$. As with the creative thought processes model, hypomania was the only significant predictor of suicidality, $\beta = .33$, $t(83) = 3.04$, $p < .01$.

Overall Risk Index. The final creative behavior model examined creative behavior, hypomania, and their interaction as predictors of overall risk. The model was significant and nearly identical to the model predicting suicidality, accounting for a significant portion of the variance, $R^2 = .11$, $F(3,83) = 3.12$, $p = .03$. As with the creative thought processes model, hypomania was the only significant predictor of overall risk, $\beta = .28$, $t(83) = 2.62$, $p = .01$. However, in this model, creative behavior was also marginally significant, $\beta = -.20$, $t(83) = -1.88$, $p = .06$. Thus, greater hypomania and lower creative behavior both showed evidence of independently predicting higher overall risk.

Figure 1. Vulnerability as a function of heuristic, with high hypomania (circles in blue) and low hypomania (squares in green) plotted separately.

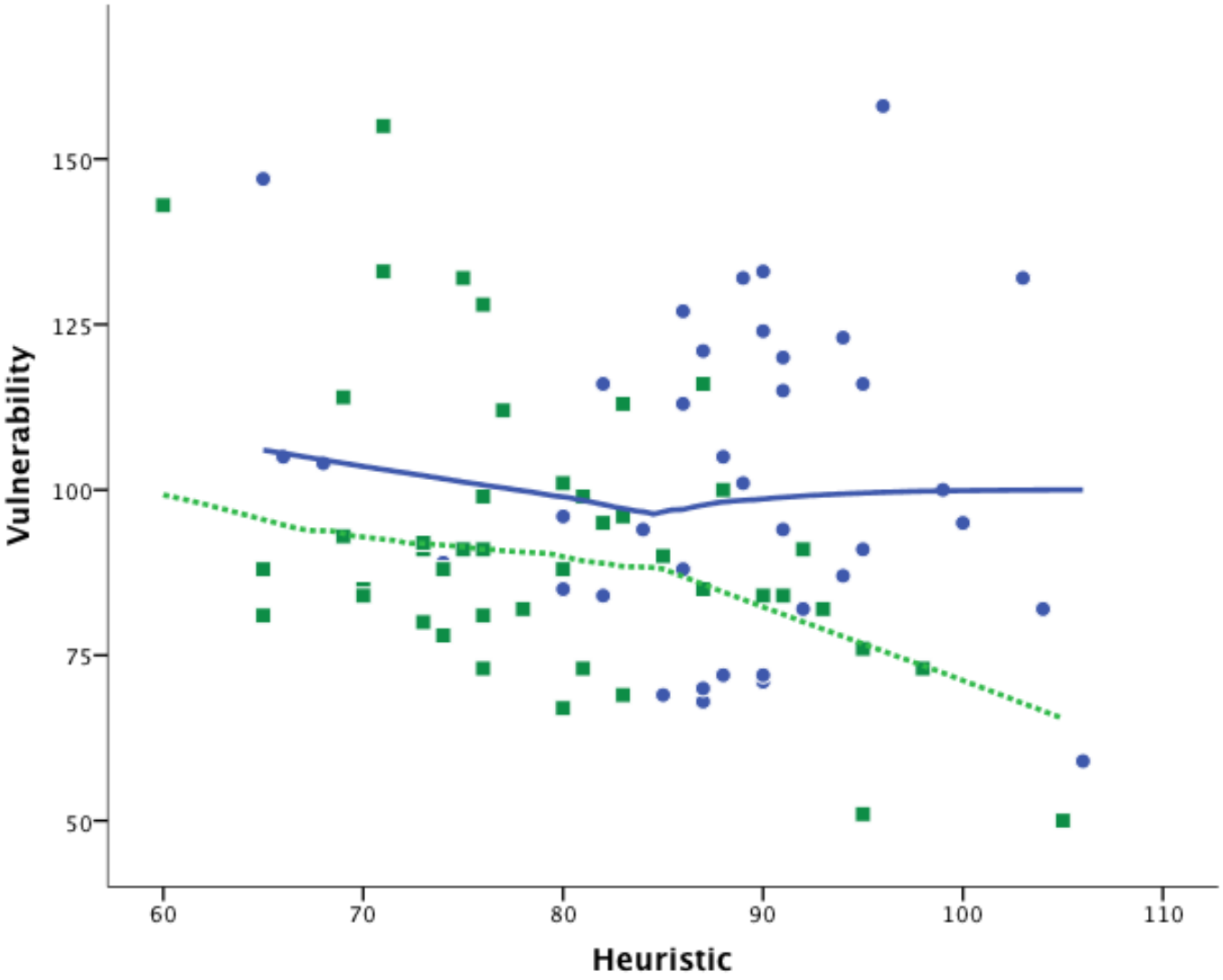
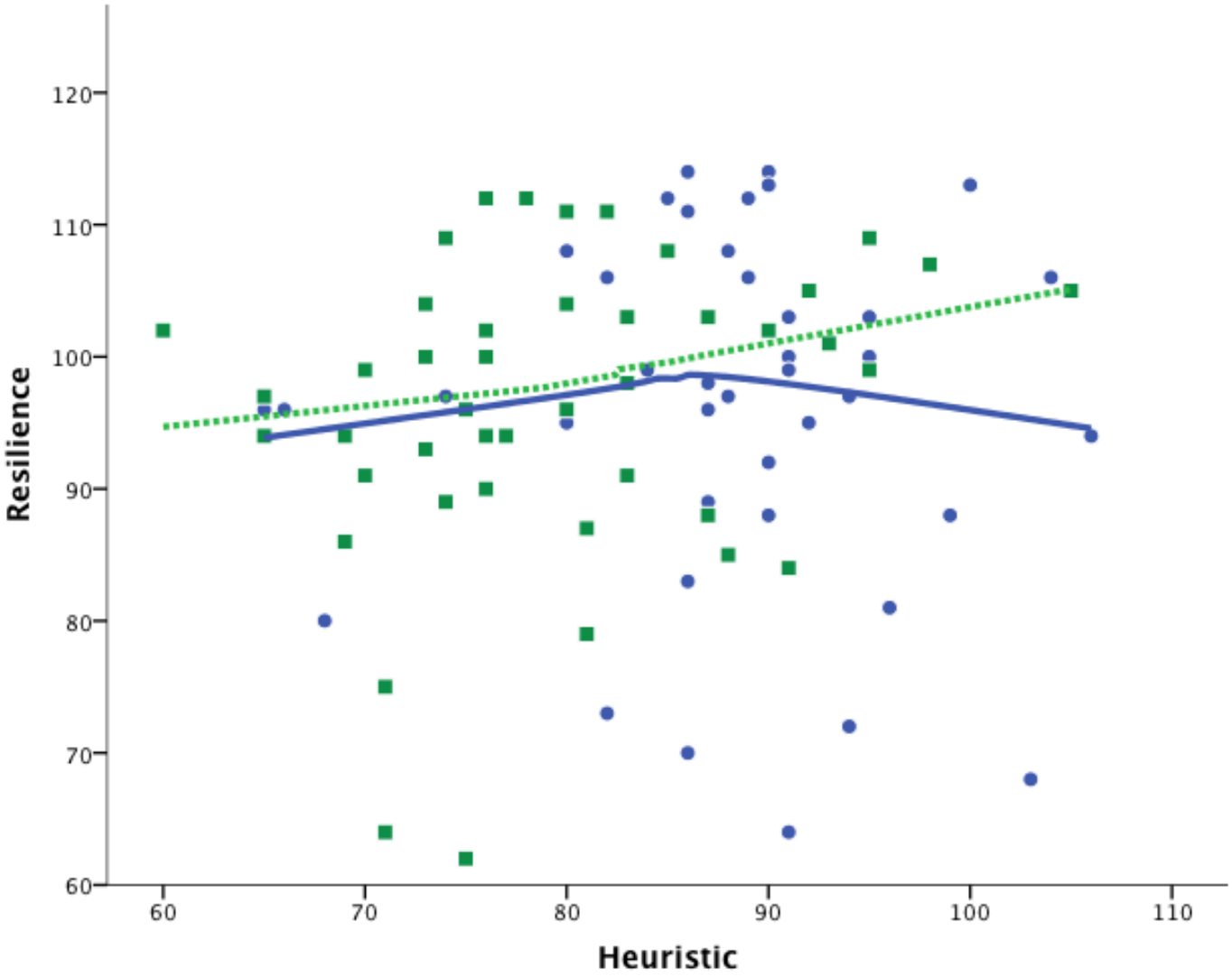


Figure 2. Resilience as a function of heuristic, with high hypomania (circles in blue) and low hypomania (squares in green) plotted separately.



Discussion

This study set out to address four hypotheses. The first, that creativity would have a positive relationship with hypomania, was supported and demonstrated by a positive relationship between creative thought (as measured by the *Heuristic Problem Solving Questionnaire*) and hypomania. It was next hypothesized that despite this relationship, creativity and hypomania would be related to different aspects of emotional functioning. This was supported, as hypomania tended to predict negative emotionality and creative behavior predicted positive emotionality. It was next hypothesized that the relation between creativity and emotional functioning would depend on hypomania. This was supported by two distinct relationships: between creative thought and resilience, and between creative thought and vulnerability. For both models, there were clear linear relationships for those low in hypomania (positive for resilience, negative for vulnerability). Once hypomania increased however, the linear relationships were destroyed. Finally, it was hypothesized that those high in hypomania and creative thought but low in creative output would perform more negatively on the emotionality and well-being measures. This could not be directly demonstrated because creative thought and creative behavior were not tested in the same model, but both the dip in resilience for those high in hypomania and creative thought and the marginally significant negative relationship between overall risk and creative behavior indirectly support this hypothesis. The specific nature of creative thought needs to be further explored, but the role of creative behavior and the protection it provides has been demonstrated through several linear regression models.

Univariate Relationships

Relationships between creativity measures. Because creativity is so difficult to measure and involves many different dimensions, it is not entirely surprising that the *Remote Associates Test* was not correlated with the other two creativity measures. The *Heuristic Problem Solving Questionnaire* and the *Creative Behavior Inventory* were positively correlated. Though they are measuring different dimensions, the moderate positive relationship maintained their relevance in the subsequent analyses. The *Remote Associates Test*, while reliable, measures a very specific kind of word association ability that many participants grew frustrated with and could not complete. When the results further uncovered that it was correlated with no other variables, it was appropriate to drop it from further analyses.

Relationships between creativity and dependent measures. The positive correlations between each of the remaining creativity measures (the *Heuristic Problem Solving Questionnaire* and the *Creative Behavior Inventory*) and flow are consistent with previous research on flow, as it is considered an optimal state of involvement and innovation. Interestingly, the *Creative Behavior Inventory* was positively correlated with the positive emotionality process of resilience, while the *Heuristic Problem Solving Questionnaire* was positively correlated with the negative emotionality processes of impulsivity and hypomania. This demonstrates the phenomenon that creative thought alone can be connected to dysfunction or risk, but it is creative behavior and output that are connected to functionality and well-being.

Multivariate Predictive Models

Creative thought processes (as measured by the *Heuristic Problem Solving Questionnaire*) and creative behavior (as measured by the *Creative Behavior Inventory*) were used in separate models with hypomania in order to determine which dimensions carried more weight in predicting different aspects of emotionality and well-being. For each of the following dependent measures, "Model 1- Thought" refers to the model where creative thought processes, hypomania, and their interaction were tested as the potential predictors, and "Model 2- Behavior" refers to the model where creative behavior, hypomania, and their interaction were tested as the potential predictors.

Flow. Both "Model 1-Thought" and "Model 2- Behavior" were significant, and both were driven by creativity. When creativity was introduced into a model predicting flow, hypomania no longer uniquely contributed; hypomania did not predict flow any more than creativity already does. As Csikszentmihalyi's conceptualization of flow describes, flow is necessary for a functional creative individual, and creativity inherently includes balance and functionality. In the present study, when creativity was examined as a predictor of flow, any contribution from hypomania became obsolete.

Vulnerability. While "Model 2- Behavior" did not predict vulnerability, "Model 1- Thought" had more success. Not only was the overall model predictive, but also both creative thought and hypomania were uniquely predictive, and their interaction was marginally predictive. The negative relationship between vulnerability and creative thought processes was stronger for those low in hypomania. When hypomania increased, the negative linear relationship between

creative thought and vulnerability was destroyed. It is possible that any protection that may have been provided by creative thought was diminished as hypomania increased and individuals became more vulnerable. Although we likely did not capture people in the highest ranges of hypomania due to the nonclinical nature of the sample, what we can conclude is that vulnerability was dependent on both creative thought and hypomania, which could have future implications for understanding the dysfunctional versus functional creativity crossroads.

Resilience. "Model 1-Thought" and "Model 2- Behavior" differed in predicting resilience. "Model 1- Thought" was only marginal, while "Model 2- Behavior" was significant. Though an interaction in "Model 1- Thought" was significant, this only weakly suggests a positive relationship between creative thought processes and resilience for those low in hypomania. As hypomania increased, the relationship between resilience and creative thought became nonlinear. In fact, those high in both hypomania and creative thought seemed to experience a dip in resilience. This suggests that resilience diminishes as creative thought increases and as high levels of hypomania approach the clinical threshold. In order to investigate this possibility, future clinical sampling is necessary. The significance of "Model 2- Behavior" was entirely driven by creative behavior alone. These findings show that creative behavior was more effective in predicting resilience than creative thought processes, hypomania, or an interaction between creativity and hypomania.

Impulsivity. Both models were significant, and both were driven by hypomania. When hypomania was introduced into a model predicting impulsivity,

creativity no longer uniquely contributed; creativity did not predict impulsivity anymore than hypomania already does. Creativity and hypomania did not interact in the prediction of impulsivity, which was a theme for all of the negative emotionality models, except for a marginally significant interaction in predicting vulnerability.

Suicidality. The results were the same for suicidality as they were for impulsivity. Both models were significant, and both were driven by hypomania. When hypomania was introduced into a model predicting suicidality, creativity no longer uniquely contributed; creativity did not predict suicidality anymore than hypomania already does. As with impulsivity, creativity and hypomania did not interact to predict suicidality.

Overall Risk Index. These results were also nearly identical to suicidality and impulsivity, in that both models were significant, and both were driven by hypomania. Thus, a general theme emerges about the role of hypomania in the prediction of negative emotionality and adjustment difficulties. However, there was one subtle difference detected: a marginal significance of creative behavior in predicting overall risk. Thus, greater hypomania and lower creative behavior both showed some level of evidence in independently predicting higher overall risk. The presence or absence of creative thought was not a conclusive predictor, but low creative behavior output had dysfunctional implications, even when hypomania was considered.

General Patterns. Hypomania tended to predict negative emotionality and/or negative well-being outcomes, including vulnerability, impulsivity,

suicidality, and overall risk. Creativity tended to predict positive emotionality and/or positive well-being outcomes, including flow and resilience. This is consistent with research, which generally frames creativity as positive and functional, where "creative persons definitely know both extremes [of emotionality] and experience both with equal intensity and without inner conflict" (Csikszentmihalyi, 1996, p. 57). They are able to know and understand negative emotionality through balance without surrendering to it. It is important to note that despite the nonclinical nature of this sample, the hypomania scale was sensitive enough to successfully detect symptomatic-like differences in individuals, and how these differences predicted negative emotionality.

There were interesting patterns in the predictive relationships found for creative thought and creative behavior. There were no differences between the two creativity dimensions in predicting flow, impulsivity, or suicidality. There were differences for vulnerability, resilience, and overall risk. While creative behavior could not predict vulnerability, creative thought was able to marginally predict it in the presence of hypomania as a predictive factor. Additionally, this was the only marginally significant interaction; creative behavior was never involved in a significant interaction with hypomania in any of the models. This is likely because the presence of creative behavior means that the creativity is functional and productive, and this is the strongest predictor of emotionality and well-being.

While creative thought only loosely predicted resilience, creative behavior was a significant predictor. Again, while creative thought could be predictive of positive or negative emotionality, leading to potential dysfunction, creative behavior

is inherently functional. This assertion was also supported by the ability of creative behavior to marginally predict overall risk (which combined suicide, mood, and substance use history), while creative thought could not. Creative thought is harder to operationally define, test, and fully understand. This was further shown in the lack of relationship between two different indices of creative thought (the *Heuristic Problem Solving Questionnaire* and the *Remote Associates Test*), and the lack of relationship between creativity as measured by the remote verbal associations and emotional function/dysfunction. Despite this complexity in the assessment and predictive ability of creative thought, it is clear that the presence or absence of creative behavior is integral in defining the level of functionality of an individual and his or her creativity.

Limitations

Challenges in measuring creativity. The measurement of creativity remains subjective, vague, and incomplete. As mentioned previously in the introduction, though Csikszentmihalyi is considered one of the greatest experts on flow in the creative context, most of his research has been qualitative, subjective, and lacks a level of empiricism necessary to develop a sufficient scope of measure for all dimensions of such a complex construct. The current, reliably tested measures accurately assess their targeted dimension of creativity, but studying the construct dimension by dimension has obvious limitations. Two of the three creativity measures used in this study were quite useful, but related to emotionality and well-being in different ways. As noted earlier, one measure, the *Remote Associates Test*, which measured one dimension of creative thought processes, was

neither correlated with other creativity measures nor with the dependent measures of emotionality and well-being, and was therefore dropped from the analysis. This is not to say that it is an unreliable measure. According to Datta (1964) regarding the *Remote Associates Test*, "the capacity to develop unusual ideas which also meet some criterion of adaptiveness is central to many definitions of creativity," just not this approach to creativity (p. 183). It has been reliably tested in populations of engineers and graduate students, but since this was a population of liberal arts college students, it may have simply been too difficult, producing a floor effect and limited variability. This could have prevented a correlation.

The major limitation in this study was operationally defining creative thought. Creative behavior was successfully measured and examined, but in order to better understand the intricacies of creative thought, more creativity measures must be included and more research must be done in order to solidly identify all creativity dimensions and how they relate to one another.

Challenges in design. The significant predictions have opened the door to new paths worth deeply pursuing, such as the differences between creative thought with and without creative behavior output. In graphing the regression models, however, it appears that much of the data may not be best estimated by a linear model. For the purposes of this study, linear regression was successful in the initial pursuit of exploratory relationships, but for future examination, other nonlinear models should be considered. Also, cluster analyses may be helpful in future research to define subgroups of individuals who are high on creative behavior,

thought, or both, based on their emotional adjustment and well-being. Such analyses were beyond the scope of the present investigation.

The use of several multiple linear regression models to examine the predictive utility of creativity and hypomania increased the chance of a Type I error. Thus, results should be interpreted with caution. With these new exploratory findings in mind, follow-up studies should use aggregate adjustment indicators that account for the different dimensions examined here and therefore require fewer regression analyses.

Hypomania in a nonclinical sample. The hypomania scale, which successfully detected a good portion of variance within the sample population, may have had limited success because of the nonclinical nature of the participants. There may not have been enough individuals in the higher ranges of hypomania to see an effect that would otherwise exist. Follow-up studies should utilize a clinical sample in order to widen the scope of measurement. This would also allow for the possibility of delineating and comparing four different groups on emotionality and well-being: high hypomania-high creativity, high hypomania-low creativity, low hypomania-high creativity, and low hypomania-low creativity. This study was able to capture the third and fourth groups, and those bordering on the first group. Utilizing a clinical sample would open possibilities for further analysis.

For the nonclinical sample, creative and functional individuals were those with flow, balance, and creative behavior output. It is essential to always remember that the creative individual is the complex individual. Creativity is incredibly difficult to define and test empirically; therefore, the line where it transitions from

excitingly complex to dangerously mad is blurry and ambiguous. However, one thing we can know is that the presence of creative invention, behavior, output, or product is a signal of functionality and well-being. As research continues to pick apart creative thought and its many dimensions, the presence of innovation and action will remain the fundamental indicators of functionality. They will remain creativity's ideal circumstance. Struggle can be involved as long as the pain and the pleasure of the process remain at equilibrium. As Csikszentmihalyi points out, "the openness and sensitivity of creative individuals often exposes them to suffering and pain yet also a great deal of enjoyment" (1996, p. 73). As long as an ideal balance is maintained, creativity can thrive.

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Appendix A- Informed Consent

I hereby consent to participate in Nora Loughry's research about creativity. I understand that this research will involve completing a series of questionnaires, and I have been informed that I will be asked a series of personal questions about my personal and familial mental health. I have been informed that before I leave the study, Nora Loughry will review Questions 10 – 13 of my personal mental health history. If I express any *current* suicidal ideations, Nora Loughry will notify Student Counseling Services or a dean. Otherwise, all responses on this survey will remain confidential.

While I understand that the direct benefits of this research to society are not known, I have been told that my participation may contribute to a better understanding of creativity and stimulate future research on the topic. I understand that this research will take about 60 minutes. I have been told that there are no known risks or discomforts related to participating in this research, and I have been told that Nora Loughry can be contacted at nloughry@conncoll.edu. I understand that I may decline to answer any questions, and that I may withdraw from the study without penalty at any time. I understand that all information will be identified with a code number and NOT my name. I have been advised that I may contact the researcher or her advisor (Professor Zakriski, alzak@conncoll.edu) who will answer any questions about the purposes and procedures of this study.

I understand that this study is not meant to gather information about specific individuals and that my responses will be combined with other participants' data for the purpose of statistical analyses. I consent to publication of the study results as long as the identity of al participants is protected. I understand that this research has been approved by the Connecticut College Human Subjects Institutional Review Board (IRB). Concerns about any aspect of this study may be addressed to Professor Jason Nier, Chairperson of the Connecticut College IRB (janie@conncoll.edu).

I am at least 18 years of age, and I have read these explanations and assurances and voluntarily consent to participate in this research about creativity.

Name (printed) _____Signature _____

Date _____

Appendix B- Remote Associates Test

Instructions: In this test you are presented with three words and asked to find a fourth word that is related to all three. Write this word in the space to the right.

For example, what word do you think is related to these three?

paint doll cat .....

The answer in this case is "house": House paint, doll house, and house cat.

1.	call	pay	line	_____	1
2.	end	burning	blue	_____	2
3.	man	hot	sure	_____	3
4.	stick	hair	ball	_____	4
5.	blue	cake	cottage	_____	5
6.	man	wheel	high	_____	6
7.	motion	poke	down	_____	7
8.	stool	powder	ball	_____	8
9.	line	birthday	surprise	_____	9
10.	wood	liquor	luck	_____	10
11.	house	village	golf	_____	11
12.	plan	show	walker	_____	12
13.	key	wall	precious	_____	13
14.	bell	iron	tender	_____	14
15.	water	pen	soda	_____	15
16.	base	snow	dance	_____	16
17.	steady	cart	slow	_____	17
18.	up	book	charge	_____	18
19.	tin	writer	my	_____	19
20.	leg	arm	person	_____	20
21.	weight	pipe	pencil	_____	21
22.	spin	tip	shape	_____	22
23.	sharp	thumb	tie	_____	23
24.	out	band	night	_____	24
25.	cool	house	fat	_____	25
26.	back	short	light	_____	26
27.	man	order	air	_____	27
28.	bath	up	gum	_____	28
29.	ball	out	jack	_____	29
30.	up	deep	rear	_____	30

Appendix C- Creative Behavior Inventory- Short Form

For each item, indicate the answer that best describes the frequency of the behavior in your adolescent and adult life. Be sure to answer every question. In some cases, you should count activities that you have done as a school-related assignment. In other cases, you should not. To avoid confusion, the phrase "excluding school or university course work" makes it explicit when NOT to count such work.

1 = never did this, 2 = did this once or twice, 3 = did this 3 to 5 times, 4 = did this more than five times

1. Painted an original picture (excluding school or university course work)

1 2 3 4

2. Designed and made your own greeting cards

1 2 3 4

3. Made a craft out of metal (excluding school or university course work)

1 2 3 4

4. Put on a puppet show

1 2 3 4

5. Made your own holiday decorations

1 2 3 4

6. Build a hanging mobile (excluding school or university course work)

1 2 3 4

7. Made a sculpture (excluding school or university course work)

1 2 3 4

8. Had a piece of literature (e.g., poem, short stories, etc.) published in a school or university publication

1 2 3 4

1 = never did this, 2 = did this once or twice, 3 = did this 3 to 5 times, 4 = did this more than five times

9. Wrote poems (excluding school or university course work)

1 2 3 4

10. Wrote a play (excluding school or university course work)

1 2 3 4

11. Received an award for an artistic accomplishment

1 2 3 4

12. Received an award for making a craft

1 2 3 4

13. Made a craft out of plastic, Plexiglas, stained class, or a similar material (excluding school or university course work)

1 2 3 4

14. Made cartoons

1 2 3 4

15. Made a leather craft (excluding school or university course work)

1 2 3 4

16. Made a ceramic craft (excluding school or university course work)

1 2 3 4

17. Designed and made a piece of clothing (excluding school or university course work)

1 2 3 4

18. Prepared an original floral arrangement

1 2 3 4

1 = never did this, 2 = did this once or twice, 3 = did this 3 to 5 times, 4 = did this more than five times

19. Drew a picture for aesthetic reasons (excluding school or university course work)

1 2 3 4

20. Wrote the lyrics to a song (excluding school or university course work)

1 2 3 4

21. Wrote a short story (excluding school or university course work)

1 2 3 4

22. Planned and presented an original speech (excluding school or university course work)

1 2 3 4

23. Made jewelry (excluding school or university course work)

1 2 3 4

24. Had art work or craft work publicly exhibited

1 2 3 4

25. Assisted in the design of a set for a musical or dramatic production (excluding school or university course work)

1 2 3 4

26. Kept a sketch book (excluding school or university course work)

1 2 3 4

27. Designed and constructed a craft out of wood (excluding school or university course work)

1 2 3 4

28. Designed and made a costume

1 2 3 4

Appendix D- Heuristic Problem-Solving Questionnaire

In the following 30 questions, I would like to get your opinion one some themes. Please answer as spontaneously as possible!

1 = not at all, 2 = somewhat, 3 = mostly, 4 = completely

1. To work on something I already know is boring for me.

1 2 3 4

2. I hate mathematical problems.

1 2 3 4

3. If my radio or another apparatus does not work, I first try to fix it myself before I ask an expert to do it.

1 2 3 4

4. I like to book my vacation as a package in a tourist agency.

1 2 3 4

5. Sometimes inventions or solutions enter my mind without me needing the thing, and without a specific problem to solve.

1 2 3 4

6. Ruminating too much is pointless, there is nothing we can do against the grievances in the world.

1 2 3 4

7. I try to do minor repairs by myself, including if I have not done this before.

1 2 3 4

8. Well-tried means more to me, so I do not risk something new instead.

1 2 3 4

9. I would rather play chess or another game against a more experienced player than against a less experienced one, who can easily be beaten.

1 2 3 4

1 = not at all, 2 = somewhat, 3 = mostly, 4 = completely

10. When I do handicrafts, I do not like to do it according to instructions.

1 2 3 4

11. When I do routine work, I think about what I am actually doing, and if it could be done differently.

1 2 3 4

12. When I try to solve a riddle, I give up immediately if I notice that it is too difficult for me.

1 2 3 4

13. I rearrange the furniture every once in a while in my dorm room.

1 2 3 4

14. I like to do things according to a plan so that I do not have to worry about routine details again and again.

1 2 3 4

15. Although it is possible to get lost in the forest, I rarely follow the signposts.

1 2 3 4

16. I do not have the patience to stay with a problem for a long time.

1 2 3 4

17. I can ruminate on a solution to a problem for such a long time that other things are forgotten.

1 2 3 4

18. When I have to do something technical, I get the correct instruments first, and get information about how to do the task professionally.

1 2 3 4

1 = not at all, 2 = somewhat, 3 = mostly, 4 = completely

19. If there was no corkscrew to hand, I would get the cork out of the bottle in another way.

1 2 3 4

20. I get more out of a visit to a museum when I go on a guided tour.

1 2 3 4

21. I am always interested to learn a new game that gives me something to think about.

1 2 3 4

22. If I am confronted with a task to solve, I try to find out how others solved the problem before me.

1 2 3 4

23. I try to solve problems in new ways.

1 2 3 4

24. If I was a teacher, I would only teach using established methods, to be sure that I use the material correctly.

1 2 3 4

25. I would rather find a solution for a previously unsolved problem than do something according to a formula or an approved method.

1 2 3 4

26. I like routine tasks. In such cases, I know what to do, and what I need to reach my goal.

1 2 3 4

27. If I ever get a dog, I won't buy one that is already trained.

1 2 3 4

1 = not at all, 2 = somewhat, 3 = mostly, 4 = completely

28. I do not like furniture that I have to build myself because I do not have any mechanical experience.

1 2 3 4

29. To solve problems you do not have to be a professor.

1 2 3 4

30. People who think too much only get wrinkles and who wants to look old?

1 2 3 4

Appendix E- Work Related Flow Inventory

Think about your favorite activity. This activity should be something you spend a significant amount of time on (such as playing a sport, dancing, writing, playing an instrument, working). Please indicate how often you experienced each of the following statements with this activity in mind.

1 = never, 2 = almost never, 3 = sometimes, 4 = regularly, 5 = often, 6 = very often, 7 = always

What is your activity? _____

1. When I am doing this activity, I think about nothing else.

1 2 3 4 5 6 7

2. This activity gives me a good feeling.

1 2 3 4 5 6 7

3. I would still do this activity, even if I received less encouragement.

1 2 3 4 5 6 7

4. I get carried away by this activity.

1 2 3 4 5 6 7

5. I do this activity with a lot of enjoyment

1 2 3 4 5 6 7

6. I find that I also want to do this activity in my free time.

1 2 3 4 5 6 7

7. When I am doing this activity, I forget everything else around me.

1 2 3 4 5 6 7

8. I feel happy during this activity.

1 2 3 4 5 6 7

1 = never, 2 = almost never, 3 = sometimes, 4 = regularly, 5 = often, 6 = very often, 7 = always

9. I do this activity because I enjoy it.

1 2 3 4 5 6 7

10. I am totally immersed in this activity.

1 2 3 4 5 6 7

11. When I am doing this activity, I am doing it for myself.

1 2 3 4 5 6 7

12. I am cheerful when I am doing this activity.

1 2 3 4 5 6 7

13. I get my motivation from the activity itself, and not from the reward for it.

1 2 3 4 5 6 7

Appendix F- Personal and Family Mental Health History

The following is a series of questions regarding your personal mental health history and your family mental health history. Please answer as honestly as possible, to the best of your knowledge.

1. Have you ever received a psychiatric or mental disorder diagnosis? (ex. Depression, Bipolar Disorder I, Bipolar Disorder II, Mania, Hypomania, Schizophrenia, Psychosis, Depression). Explain.

Yes **No**

_____

2. If you have never received a diagnosis, have you ever wondered yourself that you may have a psychiatric or mental disorder? Explain.

Yes **No**

_____

_____

3. Have you ever seen a therapist, psychologist, or psychiatrist?

Yes **No**

4. If **yes**, what was the initial reason you decided to do so?

_____

5. Have you ever been prescribed medication to treat a mental health issue?

Yes **No**

6. If you are currently taking medication, what are you taking and what is it treating?

_____

7. Have you ever felt concerned about your substance use? Explain.

Yes **No**

_____

8. Has anyone in your life ever expressed concern about your substance use? Explain.

Yes **No**

_____

9. Have you ever intentionally harmed yourself (ex. burning, cutting, hair pulling) in the past?

Yes **No**

10. Do you *currently* have any suicidal thoughts or ideations?

Yes **No**

11. Have you ever contemplated suicide in the past?

Yes **No**

12. Have you ever made suicidal plans?

Yes **No**

13. Have you ever attempted suicide?

Yes **No**

14. Next to each family member, please specify if anyone has received a psychiatric or mental disorder diagnosis. If they have not received a specific diagnosis, but have had significant experiences with any psychiatric symptoms, please indicate this as well.

Father _____ Mother _____

Siblings (specify brothers/sisters) _____

_____

_____

Paternal Aunt(s) _____

Paternal Uncle(s) _____

Maternal Aunt(s) _____

Maternal Uncle(s) _____

Paternal Grandmother _____

Paternal Grandfather_____

Maternal Grandmother _____

Maternal Grandfather _____

Cousins (describe how they are related to you/through which immediate family member) _____

_____

_____

List any other family members to which this applies and how: _____

_____

_____

_____

Appendix G- Hypomanic Personality Scale

Please answer each item true or false. Please do not skip any items. It is important that you answer every item, even if you are not quite certain which is the best answer. An occasional item may refer to experiences that you have had only when taking drugs. Unless you have had the experience at other times (when not under the influence of drugs), mark it as if you have not had that experience.

Some items may sound like others, but all of them are slightly different. Answer each item individually, and don't worry about how you answered a somewhat similar previous item.

Circle either:

EX. True False 1. The beauty of sunsets is greatly overrated.

1. I consider myself to be pretty much an average kind of person.

True False

2. It would make me nervous to play the clown in front of other people.

True False

3. I am frequently so "hyper" that my friends kiddingly ask me what drug I'm taking.

True False

4. I think I would make a good nightclub comedian.

True False

5. Sometimes ideas and insights come to me so fast that I cannot express them all.

True False

6. When with groups of people, I usually prefer to let someone else be the center of attention.

True False

7. In unfamiliar surroundings, I am often so assertive and sociable that I surprise myself.

True False

8. There are often times when I am so restless that it is impossible for me to sit still.

True False

9. Many people consider me to be amusing but kind of eccentric.

True False

10. When I feel an emotion, I usually feel it with extreme intensity.

True False

11. I am frequently in such high spirits that I can't concentrate on any one thing for too long.

True False

12. I sometimes have felt that nothing can happen to me until I do what I am meant to do in life.

True False

13. People often come to me when they need a clever idea.

True False

14. I am no more self-aware than the majority of people.

True False

15. I often feel excited and happy for no apparent reason.

True False

16. I can't imagine that anyone would ever write a book about my life.

True False

17. I am usually in an average sort of mood, not too high and not too low.

True False

18. I often have moods where I feel so energetic and optimistic that I feel I could outperform almost anyone at anything.

True False

19. I have such a wide range of interests that I often don't know what to do next.

True False

20. There have often been times when I had such an excess of energy that I felt little need to sleep at night.

True False

21. My moods do not seem to fluctuate any more than most people's do.

True False

22. I very frequently get into moods where I wish I could be everywhere and do everything at once.

True False

23. I expect that someday I will succeed in several different professions.

True False

24. When I feel very excited and happy, I almost always know the reason why.

True False

25. When I go to a gathering where I don't know anyone, it usually takes me a while to feel comfortable.

True False

26. I think I would make a good actor, because I can play many roles convincingly.

True False

27. I like to have others think of me as a normal kind of person.

True False

28. I frequently write down the thoughts and insights that come to me when I am thinking especially creatively.

True False

29. I have often persuaded groups of friends to do something really adventurous or crazy.

True False

30. I would really enjoy being a politician and hitting the campaign trail.

True False

31. I can usually slow myself down when I want to.

True False

32. I am considered to be kind of a "hyper" person.

True False

33. I often get so happy and energetic that I am almost giddy.

True False

34. There are so many fields I could succeed in that it seems a shame to have to pick one.

True False

35. I often get into moods where I feel like many of the rules of life don't apply to me.

True False

36. I find it easy to get others to become sexually interested in me.

True False

37. I seem to be a person whose mood goes up and down easily.

True False

38. I frequently find that my thoughts are racing.

True False

39. I am so good at controlling others that it sometimes scares me.

True False

40. At social gatherings, I am usually the “life of the party”.

True False

41. I do most of my best work during brief periods of intense inspiration.

True False

42. I seem to have an uncommon ability to persuade and inspire others.

True False

43. I have often been so excited about an involving project that I didn’t care about eating or sleeping.

True False

44. I frequently get into moods where I feel very speeded-up and irritable.

True False

45. I have often felt happy and irritable at the same time.

True False

46. I often get into excited moods where it’s almost impossible for me to stop talking.

True False

47. I would rather be an ordinary success in life than a spectacular failure.

True False

48. A hundred years after I’m dead, my achievements will probably have been forgotten.

True False

Appendix H- The Vulnerability and Resilience Measure

Please answer the following questions on a scale from 1 to 7:

1 = never, 2 = almost never, 3 = sometimes, 4 = regularly, 5 = often, 6 = very often, 7 = always

In general…

1. How much have you been bothered by nervousness, or your "nerves?"

1 2 3 4 5 6 7

2. How much of the time have you been a nervous person?

1 2 3 4 5 6 7

3. How often do you become nervous or jumpy when faced with excitement or unexpected situations?

1 2 3 4 5 6 7

4. How much of the time have you felt tense of "high strung?"

1 2 3 4 5 6 7

5. How often do you get rattled, upset, or flustered?

1 2 3 4 5 6 7

6. How often **do** you find yourself having difficulty trying to calm down?
**Instead of "did"*

1 2 3 4 5 6 7

7. How often are you anxious or worried?

1 2 3 4 5 6 7

8. How much of the time have you felt restless, fidgety, or impatient?

1 2 3 4 5 6 7

9. How much of the time have you been moody and brooded about things?

1 2 3 4 5 6 7

1 = never, 2 = almost never, 3 = sometimes, 4 = regularly, 5 = often, 6 = very often, 7 = always

10. How much of the time have you been in low or very low spirits?

1 2 3 4 5 6 7

11. How often, if ever, do you feel depressed?

1 2 3 4 5 6 7

12. How much of the time have you felt downhearted and blue?

1 2 3 4 5 6 7

13. How often have you felt like crying?

1 2 3 4 5 6 7

14. How often did you feel that nothing turned out the way that you wanted it to?

1 2 3 4 5 6 7

16. How often have you felt so down in the dumps that nothing could cheer you up?

1 2 3 4 5 6 7

19. How much of the time have you felt lonely?

1 2 3 4 5 6 7

21. How often did you feel that you had nothing to look forward to?

1 2 3 4 5 6 7

23. How much of the time are you able to relax without difficulty?

1 2 3 4 5 6 7

Please rate how each of following statements applies to you:

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

15. I frequently get upset.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

17. I am somewhat emotional.

1 2 3 4

18. I worry about what others think of me.

1 2 3 4

20. If someone upsets me, I am not able to put it easily out of my mind.

1 2 3 4

22. I worry about being criticized for things I have said or done.

1 2 3 4

24. There are many things that annoy me.

1 2 3 4

25. I care about what people feel about me.

1 2 3 4

26. If someone is critical of something I do, I feel bad.

1 2 3 4

27. In uncertain times, I usually expect the best.

1 2 3 4

28. I worry about the effect I have on other people.

1 2 3 4

29. If something can go wrong for me, it will.

1 2 3 4

30. I am almost always calm—nothing ever bothers me.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

31. I hardly ever expect things to go my way.

1 2 3 4

32. I can tolerate frustration better than most.

1 2 3 4

1. I enjoy making plans for the future and working to make them a reality.

1 2 3 4

2. I am an active person in carrying out the plans I set for myself.

1 2 3 4

3. I learning something from the experience.

1 2 3 4

4. I used to set goals for myself, but now that seems like a waste of time.

1 2 3 4

5. I don't have a good sense of what it is I'm trying to accomplish in life.

1 2 3 4

6. In the final analysis, I am not so sure my life adds up to much.

1 2 3 4

7. I try to grow as a person as a result of the experience.

1 2 3 4

8. I do what has to be done, one step at a time.

1 2 3 4

9. I find it satisfying to think about what I have accomplished in life.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

10. I take additional action to try to get rid of the problem.

1 2 3 4

11. I take direct action to get around the problem.

1 2 3 4

12. I have a sense of direction and purpose in life.

1 2 3 4

13. Some people wander aimlessly through life, but I am not one of them.

1 2 3 4

14. I try to see it in a different light, to make it seem more positive.

1 2 3 4

15. My daily activities often seem trivial and unimportant to me.

1 2 3 4

16. I concentrate my efforts on doing something about it.

1 2 3 4

17. I'm always optimistic about my future.

1 2 3 4

18. My aims in life have been more a source of satisfaction than frustration to me.

1 2 3 4

19. I look for something good in what is happening.

1 2 3 4

20. I sometimes feel as if I've done all there is to do in life.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

21. I rarely count on good things happening to me.

1 2 3 4

22. I accept that this has happened and that it can't be changed.

1 2 3 4

23. I feel good when I think of what I've done in the past and what I hope to do in the future.

1 2 3 4

24. I tend to focus on the present, because the future nearly always brings me problems.

1 2 3 4

25. I accept the reality of the fact that it happened.

1 2 3 4

26. I feel uneasy meeting new people.

1 2 3 4

27. Overall, I expect more good things to happen to me than bad.

1 2 3 4

28. I live on day at a time and don't really think about the future.

1 2 3 4

29. I learn to live with it.

1 2 3 4

30. I get used to the idea that it happened.

1 2 3 4

32. It takes a lot to get me mad.

1 2 3 4

Appendix I- UPPS Impulsive Behavior Scale

Please rate the following statements as they apply to you.

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

1. I have a reserved and cautious attitude toward life.

1 2 3 4

2. I have trouble controlling my impulses.

1 2 3 4

3. I generally seek new and exciting experiences and sensations.

1 2 3 4

4. I generally like to see things through to the end.

1 2 3 4

5. My thinking is usually careful and purposeful.

1 2 3 4

6. I have trouble resisting my cravings (for food, cigarettes, etc.).

1 2 3 4

7. I'll try anything once.

1 2 3 4

8. I tend to give up easily.

1 2 3 4

9. I am not one of those people who blurt out things without thinking.

1 2 3 4

10. I often get involved in things I later wish I could get out of.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

11. I like sports and games in which you have to choose your next move very quickly.

1 2 3 4

12. Unfinished tasks really bother me.

1 2 3 4

13. I like to stop and think things over before I do them.

1 2 3 4

14. When I feel bad, I will often do things I later regret in order to make myself feel better now.

1 2 3 4

15. I would enjoy water skiing.

1 2 3 4

16. Once I get going on something I hate to stop.

1 2 3 4

17. I don't like to start a project until I know exactly how to proceed.

1 2 3 4

18. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.

1 2 3 4

19. I quite enjoy taking risks.

1 2 3 4

20. I concentrate easily.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

21. I tend to value and follow a rational, "sensible" approach to things.

1 2 3 4

22. When I am upset I often act without thinking.

1 2 3 4

23. I would enjoy parachute jumping.

1 2 3 4

24. I finish what I start.

1 2 3 4

25. I usually make up my mind through careful reasoning.

1 2 3 4

26. When I feel rejected, I will often say things that I later regret.

1 2 3 4

27. I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.

1 2 3 4

28. I'm pretty good about pacing myself so as to get things done on time.

1 2 3 4

29. I am a cautious person.

1 2 3 4

30. It is hard for me to resist acting on my feelings.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

31. I would like to learn to fly an airplane.

1 2 3 4

32. I am a productive person who always gets the job done.

1 2 3 4

33. Before I get into a new situation I like to find out what to expect from it.

1 2 3 4

34. I often make matters worse because I act without thinking when I am upset.

1 2 3 4

35. I sometimes like doing things that are a bit frightening.

1 2 3 4

36. Once I start a project, I almost always finish it.

1 2 3 4

37. I usually think carefully before doing anything.

1 2 3 4

38. In the heat of an argument, I will often say things that I later regret.

1 2 3 4

39. I would enjoy the sensation of skiing very fast down a high mountain slope.

1 2 3 4

40. There are so many little jobs that need to be done that I sometimes just ignore them all.

1 2 3 4

1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree

41. Before making up my mind, I consider all the advantages and disadvantages.

1 2 3 4

42. I am always able to keep my feelings under control.

1 2 3 4

43. I would like to go scuba diving.

1 2 3 4

44. Sometimes I do things on impulse that I later regret.

1 2 3 4

45. I would enjoy fast driving.

1 2 3 4

Appendix J

Demographics

Major:_____

Minor:_____

Age:_____

Please circle the appropriate response for the following items:

Gender: Male Female Other: _____

Race/Ethnicity:

African American/Black
Hispanic/Latino(a)
Caucasian/White
Asian American/Asian Pacific
Native American
Other _____

Please circle all of the following items with which you identify:

Heterosexual Homosexual Bisexual Trans*

Asexual Queer Questioning

Appendix K

Debriefing Form

Thank you for participating in this research about dimensions of creativity and mental illness, particularly hypomania. In this research, I am assessing levels of creativity with various other dimensions of personality, psychological functioning, and experience in an effort to explore the relationship between creativity and hypomania in a normative college sample. The various dimensions include levels of individual hypomania, vulnerability, resilience, impulsive behavior, flow, and personal and familial psychiatric history. Much research has been and continues to be conducted regarding the links between creativity and mental health/illness, and the goal of this study is to examine and better understand differences between mania related creativity and non-mania related creativity. Making this distinction may help refine research on this topic and focus attention on the factors associated with hypomania and creativity. Please refrain from sharing any information about this study as it may affect the outcome of the research.

If you are interested in this topic and want to learn more about the literature, please contact me, Nora Loughry, at nloughry@conncoll.edu. Dr. Jason Nier, Chairperson of the Connecticut College IRB, is available at janie@conncoll.edu. Professor Audrey Zakriski, advisor and first reader of this thesis, is also available at alzak@conncoll.edu. If this study has raised concerns for you about your mental health, please contact Student Counseling Services at 860-439-4587.

Listed below are two sources you may want to consult if you wish to learn more about this topic:

Glazer, E. (2009). Rephrasing the madness and creativity debate: What is the nature of the creativity construct? ***Personality and Individual Differences*****, 46 (1), 755 – 764.**

Murray, G., Johnson, S.L. (2010). The clinical significance of creativity in bipolar disorder. ***Clinical Psychology Review*****, 30 (3), 721 – 732**

Appendix L- Additional Debriefing Form for Students expressing *PAST* Suicidal Ideation Only

You are receiving this additional debriefing form because although you deny any current suicidal thoughts or ideations, you have expressed past suicidal thoughts, plans, or attempts. Students Counseling Services is a confidential resource for support and help. To make an appointment, call 860-439-4587.

Appendix M- Additional Debriefing Form for Students expressing *CURRENT* Suicidal Ideation/Thoughts

You are receiving this additional debriefing form because you have expressed a current ideation or thought of suicide. As part of my ethical duty as a researcher, I am required to notify Student Counseling Services and/or a dean. Students Counseling Services is a confidential resource for support and help, and can be reached at 860-439-4587.