An Exploration of Mindfulness in Its Relation to Career Thoughts, Vocational Identity, and Decision-Making Style

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AN EXPLORATION OF MINDFULNESS IN ITS RELATION TO CAREER THOUGHTS,
VOCATIONAL IDENTITY, AND DECISION-MAKING STYLE

By

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ABSTRACT

Mindfulness has made a strong emergence in psychological research and practice over the past few decades. Many authors have suggested the utility of mindfulness in fostering healthy career development, although very little empirical research has been conducted in this area. The purpose of the present study was to explore the role of mindfulness in a career context, by investigating the relationships among mindfulness, dysfunctional career thoughts, vocational identity, and decision-making style. The sample consisted of 258 undergraduate students at a southeastern university. Significant correlations in the predicted directions were found among all variables of interest. The data were then analyzed using ANOVA procedures, which revealed strong main effects for high mindfulness, thinking-based decision-making style, and internal-based decision-making style for both dysfunctional career thoughts and vocational identity. No interactions were found, suggesting that high mindfulness is associated with fewer dysfunctional career thoughts and higher vocational identity, for all types of decision makers. Secondary analyses utilized regression procedures, finding that mindfulness and decision-making style accounted for 32.2% of the variance in dysfunctional career thoughts, and 22.8% of the variance in vocational identity. Directions for future research and implications for practice are discussed.
CHAPTER ONE

INTRODUCTION

A metaphor used for understanding the usefulness of mindfulness was described by Kabat-Zinn (1994): “You can’t stop the waves, but you can learn to surf” (p. 30). In this metaphor, picture an ocean in which the waves are thoughts, emotions, and physical sensations. The moon (or the force creating tides influencing the size of the waves) is the adversity that one encounters in life. The occurrence of and size of waves are inevitable and uncontrollable; and attempting to avoid, fight, resist, or stop them is futile. Instead, one must develop the capacity to accept and understand the nature of the waves, and carefully observe and prepare to respond to them. If left unconscious, waves are given more power and may cause one to become submerged or even thrashed into the rocks. Mindfulness in this metaphor is learning how to surf, or ride on top of the waves of thoughts, emotions, and sensations, which become amplified through environmental stress. A surfer does not intend to change the waves in any way, but accepts them and utilizes them as they are. A smooth ocean has never produced a great surfer, meaning that a certain level of adversity in life is necessary for proper development; and oftentimes the larger the waves, the more skilled a surfer will become. Falling off the board from time to time is inevitable; one must only have the willingness and courage to keep surfing.

1.1 Social Significance

In terms of a career context, the “waves” are now larger than ever. Making career decisions and learning to navigate the economy and job market is becoming more difficult, especially when potentially negative thoughts and emotions arise from current conditions. No longer are the days when complex career problem solving and decision making can be achieved
through rationality alone, and discerning new strategies for improving career counseling practice will be important to adapt to societal changes influencing career decisions. A number of theorists in the fields of career counseling and vocational psychology have called for the necessity of more personal, emotive, and intuitive approaches to be integrated into career counseling; and the efficacy of solely rational methods is becoming increasingly deemphasized (Kreishok, 1998; Kidd, 1998; Kelly & Lee, 2002; Kreishok, Black, & McKay, 2009). This trend is also evidenced by non-rational approaches to career decision making such as positive uncertainty (Gelatt, 1989) and planned happenstance (Mitchell, Levin, & Krumboltz, 1999).

Mindfulness as a practice for developing a calm mind and clear vision has been utilized for millennia, and has made a strong emergence in psychological practice and literature over the past few decades. Adopting mindfulness for use in career counseling may prove to be an efficacious approach for assisting individuals with making career decisions and solving complex career problems, and a number of authors have discussed the possible benefits of using mindfulness approaches to help individuals solve career problems (Jacobs & Blustein, 2008; Kidd, 1998; Kabat-Zinn, 1994; Tolle, 1999). However, with the exception of Master’s Thesis by Zhang (2011), no empirical study has investigated the usefulness of incorporating mindfulness into career counseling. Given the scarcity of research investigating the promise of mindfulness in career counseling, an exploratory approach with a sound theoretical framework is efficacious.

In order to explore possible benefits of mindfulness in a career context, this study utilized the cognitive information processing (CIP; Sampson, Peterson, Reardon, Lenz, 2004) theory of career development, by investigating relationships between mindfulness and measures targeting selected CIP content areas (metacognitions, self-knowledge). Specifically, mindfulness was explored in terms of its relation to dysfunctional career thoughts and vocational identity. These
relationships were examined further by investigating the role of decision-making style. The purpose of this study is to examine the effects of mindfulness and decision-making style on dysfunctional career thoughts and vocational identity, as well as the moderating effect of vocational decision-making style on the relationships between mindfulness and career thoughts and between mindfulness and vocational identity.

1.2 Operational Definition of Terms

The following terms are used throughout this study, and will be discussed in detail in Chapter 2:

Mindfulness - a state of being, in which one is intentionally and nonjudgmentally aware of thoughts, emotions, bodily sensations, and external stimuli in the present moment; characterized by an attitude of openness, acceptance, and curiosity (Kabat-Zinn, 2003).

Mindfulness practice - any action intended to lead one into or cultivate an increased state of mindfulness (Kabat-Zinn, 2003).

Mindfulness skills - aspects of maintaining a state of mindfulness which can be learned and developed through practice (Kabat-Zinn, 2003).

Career - “time extended working out of a purposeful life pattern through work undertaken by a person” (Reardon, Lenz, Sampson, & Peterson, 2009, p. 6).

Career development - “the total constellation of economic, sociological, psychological, educational, physical, and chance factors that combine to shape one’s career” (Reardon et al., 2009, p. 6).

Career problem - “a gap between an existing state of career indecision and a more desired state of decidedness; may be multifaceted in nature involving feelings, beliefs, behavior, family, community, leisure, and spiritual dimensions” (Reardon et al., 2009, p. 269).
Problem solving - “involves thinking or processing information that will lead to a course of action to remove the gap” (Reardon et al., 2009, p. 58).

Decision making - incorporates the components of problem-solving, plus “the development of a plan or strategy for implementing the chosen solution and the adoption of a risk-taking attitude and commitment to carry the plan to completion” (Reardon et al., 2009, p. 58).

Self-knowledge - one’s “values, interests, skills and employment preferences” (Sampson, Reardon, Peterson, & Lenz, 2004, p. 45).

Metacognition - thinking about thinking, which “controls the selection and sequencing of strategies used to solve problems through self-talk, self-awareness, and monitoring and control” (Sampson et al., 2004, p. 48).

Career thoughts - “outcomes of one's mental activity (thinking) about behaviors, beliefs, feelings, plans, and/or strategies related to career problem solving and decision making” (Reardon et al., 2009, p. 269).

Vocational identity - “the possession of a clear and stable picture of one’s goals, interests, personality, and talents” (Holland, 1997, p. 24).

Vocational decision-making style - “the manner in which individuals approach a decision-making situation” (Arroba, 1977, p. 181).
CHAPTER TWO REVIEW OF

THE LITERATURE

This chapter provides a brief overview of the history of mindfulness; discusses various characteristics, definitions, measurement instruments, and treatment modalities of mindfulness; reviews the literature investigating the neurological and psychological effects of mindfulness, and discusses how mindfulness may be adopted and used in career development research and practice. In order to conceptualize the possible benefits of incorporating mindfulness in a career context, cognitive information processing (CIP; Sampson et al., 1996) was used as a theoretical framework.

2.1 Historical Overview of Mindfulness

Mindfulness as a concept and practice has a history spanning over 2500 years, with its roots in Buddhist tradition. As a practice, mindfulness is considered one of the components of the Noble Eightfold Path, leading to enlightenment and the end of suffering. According to Buddhist Theravada tradition, as attention is increasingly focused on the flow of internal and external experiences without judgment or mental commentary, one comes to a more deepened understanding of oneself and the nature of life (Gilpin, 2009). Mindfulness, according to ancient Tibetan Buddhism is considered a continuum of phases. The first phase involves developing sustained attention through deliberate practice, and the second phase involves introspection and an understanding of the nature of thoughts and emotions as transient. Once these phases are reached, one develops a sense of wisdom of the true nature of the self and of reality, which eventually leads to a state of tranquility (Gilpin, 2009).
Mindfulness remained a primarily Buddhist tradition until the 1970s, when modern practitioners began incorporating elements of mindfulness into Western medical practice. Hayes (2002) discussed the inclusion of mindfulness in scientific research and practice, and asserted that the field must be free to interpret and transform the construct of mindfulness theoretically without being limited by its religious history. Freeing mindfulness from its religious roots was necessary to make it more applicable to the general population, and the integration of mindfulness training into clinical treatment was achieved through the secularization of the construct (Dimidjian & Linehan, 2003).

Possibly the first individual to standardize a mindfulness-based intervention for use in Western medicine was Jon Kabat-Zinn, who developed a stress reduction program at the University of Massachusetts Medical Center in 1979 that came to be known as Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990). According to the MBSR website (www.umassmed.edu/cfm/stress), more than 18,000 individuals have completed the 8-week mindfulness training program, which is now offered at 688 hospitals and medical centers worldwide. Since the inception of MBSR, the utilization of mindfulness approaches has increased dramatically in both medical and psychological practice. In the realm of psychotherapy, mindfulness has extended beyond a means for reducing stress, to treating various psychological disorders such as major depression, generalized anxiety, attention-deficit disorders, and borderline personality; and the inclusion of mindfulness in various facets of career counseling has recently been discussed. A major area of contention in the use of mindfulness is the obscure nature of the construct; and some assert that the operationalization of the term and standardization of the practice is necessary for its use in research and psychotherapy (Bishop, Lau, Shapiro, Carlson, Anderson, Carmody, Segal, Abbey, Speca, Velting, & Devins, 2004;
Brown & Ryan, 2003; Kabat-Zinn, 2003). Various approaches to defining mindfulness are discussed in the next session.

2.1.1 Definition of Mindfulness

Defining mindfulness has been a challenge during its recent history in the psychological literature. Paying attention to what arises in the present moment in a nonjudgmental way is a seemingly simple construct. However, the construct of mindfulness is deceptively complex and becomes even more complex when various characteristics are included in its definition. Despite the promise that mindfulness holds as an intervention for various psychological problems, identifying a consistent operational definition is an ongoing process (Bishop et al., 2004). Some have defined mindfulness strictly as a religious tradition stemming from ancient Buddhism. Others have defined it in varying ways, including a skill that can be developed with practice, a set of beliefs about how to function optimally in the world, a state of mind, and a personality trait. The majority of definitions include a combination of these components (Chase, 2009).

One of the first authors to introduce mindfulness to the western world was Vietnamese Zen master Thich Nhat Hanh (1976), who defined mindfulness as “keeping one’s consciousness alive to the present reality” (p. 11). This notion of mindfulness asserts that whatever one is doing in the present moment must be the most important thing at that moment. Whether it is washing dishes, drinking tea, doing homework, or researching occupations; whatever one is doing in any given moment should be the most important thing. Being alive to the present reality, whatever that might be, allows individuals to see the world more vividly and be an active creator of their own life (Hanh, 1976).

Martin (1997) proposed a definition of mindfulness as “a state of psychological freedom that occurs when attention is quiet and limber” (p. 294). He added that such a state should be
without attachment to any meaning, thought, behavior, or emotion. Martin asserted that although mindfulness has its roots in eastern religions, and seems to have been absent from western psychology until recently, the processes and mechanisms of mindfulness have been contained in various western psychotherapies all along (e.g., psychodynamic, cognitive-behavioral). Brown, Ryan, and Creswell (2007b) supported this notion by describing mindfulness as a long-standing tradition in the field of psychology; recognizing that many theoretical orientations propose the value of bringing consciousness to bear on subjective experience (i.e., thoughts, emotions, external stimuli). By lifting the ideas of mindfulness out of obscurity, researchers can examine its role across various psychotherapeutic orientations (Martin, 1997).

Baer (2003) defined mindfulness in terms of bringing attention to internal and external experience occurring in the present moment, which is a skill that can be honed over time with intentional practice. Any attitudinal factors associated with this definition of mindfulness are considered to be an outcome of the skills attained and not part of the construct itself. Kabat-Zinn (1994) defined mindfulness as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (p. 4). This definition expands on mindfulness as merely a set of skills and incorporates elements of attitudes, beliefs, and other qualities, such as: acceptance, patience, openness, gratitude, empathy, trust, nonjudging, letting go, gentleness, generosity, nonstriving, and kindness. Some of these qualities may be more inherent to the practice of mindfulness itself (openness, acceptance, nonjudging), while others appear to be attitudinal changes as a result of mindfulness practice (kindness, generosity, gratitude).

Later, Kabat-Zinn (2003) clarified this distinction by referring to mindfulness as a state of being, in which one is nonjudgmentally aware of thoughts, emotions, bodily sensations, and external stimuli in the present moment, characterized by openness, acceptance, and curiosity.
This definition distinguishes between what mindfulness actually is (a state of being) and the attitudinal characteristics that accompany or characterize such a state. Martin (1997) seems to corroborate this distinction by describing mindfulness as a state of being open, receptive, and nonresistant to whatever the present moment has to offer. The premise behind mindfulness practice is the notion that such a state of being allows one to effectively cope with stressors in a reflective and responsive manner, as opposed to a reactive, reflexive, manner (Kabat-Zinn, 2003).

An article by Bishop et al. (2004) discussed the results of a number of meetings held to develop and establish an agreed-upon operational definition of mindfulness for future research. They described mindfulness as a practice of mental training for the purpose of reducing reactive thoughts, emotions, and behavior; as opposed to relaxation or mood-management techniques. The Bishop et al. (2004) proposition of a mindfulness definition included two components: self-regulation of attention to experience in the present moment, and an attitude of curiosity, openness, and acceptance.

Brown and Ryan (2004) made a distinction between awareness and attention, in which awareness is the experience of all phenomena occurring in the present moment (including thoughts, emotions, bodily sensations, and sensory perceptions); while attention is the focusing of awareness on a particular internal or external phenomenon. Awareness and attention are intertwined and are the primary features of consciousness; and mindfulness concerns observing consciousness as a whole, including both awareness and attention. Brown, Ryan, and Creswell (2007a) described mindfulness as a receptive state of mind in which the ongoing stream of consciousness (thoughts, images, verbalizations, emotions, impulses, etc.) can be observed without discriminating, categorizing, or responding habitually. Such a state of mind allows for
more flexible and informed mental, emotional, and behavioral responses. Although mindfulness is seen as a method to detach oneself from thought, it is not seen as a method to resist or or avoid thoughts, but allows one to use thoughts with greater effectiveness and precision (Brown et al., 2007b).

Shapiro, Carlson, Astin, and Freedman (2006) postulated three components of the mindfulness construct (attention, intention, and attitude), and a “metamechanism of repercieving” (p. 374). They cited Kabat-Zinn’s (1994) mindfulness definition as the foundation for the three axioms. Intention is described as one’s dynamic and evolving personal vision, which changes with increased mindfulness from regulation to exploration to liberation. Shapiro et al. (2006) noted that intention is crucial to the mindfulness process, and is often overlooked in other contemporary definitions. The attitude component consists of qualities one brings to attention, including: compassion, non-striving, patience, curiosity, kindness, and openness; and that having the wrong attitude (e.g., cold, critical, etc.) may result in one becoming condemning or judgmental of oneself. The overall repercieving mechanism refers to the ability to de-identify from contents of consciousness and view experience with greater objectivity, which naturally occurs in mindfulness practice. Not becoming attached to thoughts and emotions as they arise allows one to keep from being defined, controlled, or conditioned by them; and maintain greater objectivity and equanimity (Shapiro et al., 2006).

The literature suggests that mindfulness is a complex and multidimensional construct. At first, it may appear that mindfulness is a capacity that can be immediately achieved once one becomes aware of it, simply by paying attention to the present moment. However, it also appears that mindfulness is a way of being that requires deliberate practice over time in order to cultivate. Kabat-Zinn (2003) described this nature of mindfulness as “the work of a lifetime and,
paradoxically, the work of no time at all” (p. 149). It is the very complex and seemingly obscure nature of mindfulness that has made it difficult to define in operational terms; however, it appears that the majority of definitional attempts have certain qualities in common. For the purposes of this study, mindfulness is defined as intentional focus of attention to whatever arises in the present moment (thoughts, emotions, bodily sensations, and external stimuli) with nonjudgmental acceptance, which is a state of being likely to be characterized by various attitudinal factors (openness, acceptance, equanimity, patience, empathy, calmness, trust, gratitude, kindness, etc.) (Kabat-Zinn, 2004; Brown & Ryan, 2004; Shapiro et al., 2006).

2.1.2 Measurement of Mindfulness

The breadth of characterizations in defining mindfulness have been reflected by the various attempts at its measurement for use in both psychological research and practice. Some view mindfulness as a unitary construct, while others conceptualize mindfulness in terms of various factors. Some view mindfulness as a dispositional state, while others view it as a skill set of skills that is able to be further developed with practice. Also, the variety of scales reflects differences in populations that each is designed to measure (e.g., meditators, nonmeditators). Each measure appears to have unique strengths and weaknesses, and be appropriate for different reasons and with different populations. Overall, the choice of a mindfulness scale should depend on how the concept is operationalized and whether one intends to study non-meditators or those with varying levels of meditation experience.

After closely analyzing the literature pertaining to the measurement of mindfulness, it was determined that the most appropriate measure for this particular study is the Cognitive Affective Mindfulness Scale – Revised (CAMS-R; Feldman, Hayes, Kumar, Greeson, &Laurenceau, 2007), given that it measures mindfulness directly, views mindfulness as a unitary
construct with various aspects, and can be quickly administered. In addition to the various instruments that have been created, a variety of standardized mindfulness treatment modalities have also been developed, each with unique purposes and characteristics.

2.1.3 Mindfulness Treatment

In order to demonstrate the recent and well-established incorporation of mindfulness into Western psychological practice, a brief review of standardized treatment modalities is prudent. Mindfulness practice has become increasingly popular in psychotherapy, which is reflected by a dramatic increase in the literature over the past few decades. Specific well-known treatment modalities that use mindfulness as a central tenet include Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990), Mindfulness-Based Cognitive Therapy (MBCT; Teasdale et al., 2000), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and Dialectical Behavior Therapy (DBT; Linehan, 1993).

As discussed earlier, mindfulness practice traces its roots back to ancient Buddhism and Vipassana and Zen meditations. However, as Kabat-Zinn (2003) noted, mindfulness practice is about attention to the present moment, it is an inherent human capacity, and “there is nothing particularly Buddhist about it” (p. 145). The main tenet used in all mindfulness practices is present-moment focus, which is usually achieved through attention to a particular anchor (usually breathing; but may also include visual stimuli such as candlelight, sensations in the body, a particular mantra, etc.). By focusing on an anchor, such as breathing, one can more easily turn off the dialog of automatic thoughts streaming through the mind, and enter a more contemplative, relaxed physiological and psychological state. Slow and deep breathing also balances the sympathetic and parasympathetic nervous system, and increases oxygenation of the blood, enhancing physical relaxation (Kabat-Zinn, 2003).
Kabat-Zinn has been credited for bringing mindfulness into mainstream practice with the development of the MBSR program, which is conducted over 8-10 weeks, with 2 hours of weekly instruction and at least 45 minutes of homework for daily mindfulness practice. Additionally, an intensive all-day mindfulness session is typically held sometime during the 6th or 7th week. Through MBSR, several mindfulness practices are taught, including a body scan, yoga postures, as well as sitting, walking, standing, and eating meditations (Kabat-Zinn, 1990; Baer, 2003). Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002) adopted many of the practices and features of MBSR. MBCT was originally designed to alleviate symptoms of depression and assist with the prevention of relapse of major depressive episodes. MBCT focuses on increasing metacognitive awareness to foster an early recognition of depressive thinking patterns, which enables patients to prevent the relapse of depressive episodes. One defining characteristic of MBCT is the secular nature of the practice, as no spiritual teachings are provided in addition to the techniques themselves.

Another treatment modality that uses mindfulness practice as a central feature is Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). ACT focuses on the observation of thoughts, emotions, behaviors, and bodily sensations; and acceptance of whatever arises in the present moment. Various activities and metaphors are used to illustrate that avoiding or resisting one’s thoughts, emotions, and behaviors is destructive; and instead individuals must change their relationship to the present moment through nonjudgmental acceptance and committed action (Hayes et al., 2006). The ideas in ACT stem from the notion that suffering is derived from language formation and dealing with the world through language-oriented thoughts; and that through mindfulness one can recognize and change the effects of the language illusion. For example, language creates comparative, evaluative, and judgmental
thoughts, and mindfulness allows one to slow down the verbal inner dialog and view events objectively without becoming defined by them.

Dialectical Behavior Therapy (DBT; Linehan, 1993) is a mindfulness-based treatment modality primarily used to treat Borderline Personality Disorder. Developing mindfulness skills is central to DBT’s treatment modality. Linehan (1993) made the distinction between the “reasonable mind, emotion mind, and wise mind” (p. 63), where the “wise mind” adds intuitive knowledge through the integration of rationality and emotion; and is cultivated through the development of mindfulness skills. She also made the distinction between mindfulness “what” skills (learning how to observe, describe, and participate with experience) and mindfulness “how” skills (focus on only one thing in the present moment, viewing events nonjudgmentally, being effective, and giving up being right).

Although each of the mindfulness-based treatment modalities address similar ideas, they each have unique methods designed to promote the practice of mindfulness. Some are more rooted in traditional Buddhist practice, while others are strictly secular in nature (Chiesa & Malinowskii, 2011). Baer (2003) conducted a conceptual and empirical review of mindfulness-based treatment modalities and found that overall, modalities including mindfulness practices improve psychological functioning in areas such as depression, anxiety, and psychological well-being. Also, the majority of patients who begin mindfulness-based treatments tend to complete them, despite the oftentimes demanding nature of the time commitment and homework involved. Research has also shown that patients tend to continue practicing mindfulness long after treatment programs have ended, providing evidence for the ongoing benefit of mindfulness as perceived by the patients (Baer, 2003). Although the standardized mindfulness-based treatment modalities discussed in this section offer an excellent approach to providing a platform for
introducing mindfulness practices and philosophical viewpoints; mindfulness cannot be limited to any particular set of conceptualizations or standardization. Kabat-Zinn (2003) emphasized this by stating that mindfulness-based treatments “are the menu, so to speak, not the meal; the map, rather than the territory” (p.147). Individuals who wish to become more mindful only have to increase their awareness of what they experience in the present moment, although the practices and insights taught through standardized treatment modalities may accelerate one’s ability to become more mindful.

The literature reviewed suggests that mindfulness is a state of being more aware in the present moment that can be cultivated through intentional practice, and the effects of such practice have been hypothesized to lead to improvements in many areas, such as anxiety, depression, and psychological well-being. It has also been hypothesized that such changes are more than merely attitudinal, but that mindfulness practice may actually change the anatomy and chemistry of the brain, providing physical evidence for its effects. To gain a better understanding of the neurological effects of mindfulness, and how such effects may be related to the positive psychological effects observed, a brief review of selected literature involving mindfulness and neurological effects will be provided.

2.2 Neurological Effects of Mindfulness

It has been hypothesized that mindfulness practice modifies the brain by building stronger regional fibers, which in turn helps to balance the right and left hemispheres, or rational and emotive centers of the brain (Ryback, 2006). Recent studies have begun to explore the neurological effects of mindfulness using a variety of imaging techniques. It is beyond this paper’s scope to discuss in detail each of the studies that have been conducted. Instead, a review
of a recent meta-analysis and reviews of articles published since the time of that meta-analysis will be presented.

Chiesa and Serretti (2010) conducted a review of 54 randomized controlled studies investigating the neurological effects of mindfulness practice. Overall findings provide evidence that mindfulness practice affects EEG activity, causing a slowing of brain activity decrease in beta frequency (the normal waking state) to theta frequency (a deep meditative state), which is correlated with level of mindfulness experience. This consistent finding suggests that mindfulness practice leads to deeply relaxed states, especially for experienced meditators. The neuroimaging studies conducted revealed consistent findings suggesting that differences may exist in brain anatomy between meditators and controls. Specifically, cerebral and subcortical structures involved in attention tended to be thicker in meditators compared to controls. The increase in gray matter for meditators also did not show significant decrease with age compared to controls. These findings suggest that cultivating mindfulness may lead to reorganization of brain activity (Chiesa & Serretti, 2010), and that such changes in brain anatomy remain indefinitely. It is important to note that the majority of the studies finding differences in neuroanatomy between meditators and non-meditators did not obtain brain imaging of the meditators prior to the onset of their practice. Therefore, it may be that the neuroanatomy differences existed apriori, and that such differences may have something to do with one’s motivation to begin meditating in the first place.

In 2011, a controlled longitudinal study was conducted by Holzel, Carmody, Vangel, Congleton, Yerramsetti, Gard, and Lazar which investigated pre-post changes in the concentration of gray matter following participation in an MBSR program. Neuroimaging on 16 meditation-naïve participants were compared with a wait-list control group. Paired-samples t-
tests revealed a significant increase in gray matter concentration for the treatment group, specifically in the left hippocampus and parts of the cortex and cerebellum, with no change in the control group. This study demonstrated longitudinal brain-matter changes in healthy adults following an 8-week mindfulness training program, which suggests mindfulness practice may lead to increases in the concentration of grey matter in regions of the brain involved in emotion regulation, as well as areas involved in memory and learning.

Farb, Anderson, Bean, McKeon, Mayberg, and Segal (2010) conducted a study comparing neural reactivity (measured by functional MRI; fMRI) to induced sadness between an MBSR group and a wait-list control group. After the treatment group finished the 8-week mindfulness training program, all participants watched four 45-second movie clips while receiving fMRI, two of which were neutral and two were sadness-provoking; and they rated their level of sadness after each clip. No difference was found between the groups in self-reported sadness; however, fMRI results revealed distinct differences in neural responses between the treatment and control groups. Specifically, participants who completed the mindfulness training demonstrated less neural reactivity to sadness provocation in brain regions related to autobiographical memory, self-referential processing, and language areas. Because both groups reported experiencing similar levels of sadness, these findings suggest that those in the treatment group regulated their emotional response differently than the control group. Farb et al. (2010) suggested that mindfulness practice may lead to the development of metacognitive skills, which allow for the viewing of emotionally-charged experience from a detached standpoint as opposed to a threat to self. The finding that mindfulness practitioners had less activation in language areas supports the notion proposed by Hayes and Kelley (2003) that mindfulness reduces verbal self-evaluation and comparison to others.
These promising results make apparent that mindfulness practice does indeed influence brain chemistry and brain anatomy, which supports the hypotheses that mindfulness may lead to different states of mind characterized by calmness, openness, and creativity. Additional research will be beneficial to support and clarify these findings in order to gain a better understanding of the mechanisms of mindfulness. In addition to the neurological changes that mindfulness has been shown to produce, it has also been extensively studied in terms of its capacity to improve psychological states of being and mental health symptomology.

2.3 Mindfulness and Mental Health

The quality of consciousness has been long associated with well-being in various philosophical, spiritual, and psychological traditions. Mindfulness can be thought of as a way to cultivate more quality in consciousness through focused attention and awareness (Brown & Ryan, 2003). Mindfulness has also been thought of as a way to become aware of and disengage from automatic, ruminative thoughts and destructive habits and behaviors, which in turn is likely to foster higher levels of overall well-being (Ryan & Deci, 2000).

2.3.1 Well-being

Brown and Ryan (2003) tested the relationships among mindfulness and various measures of well-being in samples consisting of college students and adults. They found significant relationships (-.29 to -.53) in the expected directions for all facets of the NEO-PI Neuroticism subscale (Anxiety, Angry Hostility, Depression, Self-Consciousness, Impulsiveness, Vulnerability), as well as the Beck Depression Inventory(-.42), the Multidimensional Self-Esteem scale (.36), The Life Orientation Test Optimism scale (.34), Life Satisfaction (.37), Vitality (.46), Autonomy (.37), Competence (.68), Positive Affect (.39), and Negative Affect (-
This preliminary study supported the hypothesis that mindfulness is associated with greater levels of overall well-being.

Hollis-Walker and Colosimo (2011) conducted a study with 123 non-meditators, and found strong relationships between mindfulness and psychological well-being (.75), between mindfulness and self-compassion (.69), and all five scales from the NEO-PI (Neuroticism .66, Conscientiousness .46, Extraversion .42, Agreeableness .36, Openness .35). A secondary finding was that self-compassion partially mediated the relationship between mindfulness and psychological well-being, suggesting that higher levels of mindfulness promote a compassionate attitude, which may in turn safeguard against threats to psychological well-being (negative thoughts and emotions, stressful events, etc.). These findings provide evidence of the benefits of mindfulness, even if one does not practice meditation or other mindfulness-cultivation practices.

The relationship between psychological well-being and mindfulness was further examined by Sauer, Walach, and Kohls (2011), who found that the relationship between mindfulness and psychological well-being was partially mediated by behavioral inhibition, suggesting that mindfulness leads to increased psychological well-being as long as one is willing to face challenges. This finding is similar to the process of experiential avoidance described by Hayes and Wilson (2003), in which a person is unwilling to remain in present experience and engages in avoidance behaviors to block out unpleasant thoughts, emotions, or sensations. Mindfulness in this context can be viewed as a willingness to have the courage to face current experience, whether pleasant or otherwise, which leads to improved psychological well-being because those thoughts and emotions are no longer left unconscious.

The literature reviewed indicates the value of mindfulness in supporting and promoting overall psychological well-being. Mindfulness has also been hypothesized to reduce symptoms
of specific psychological disorders, such as depression, anxiety, and attention difficulties, and number of studies have investigated the role of mindfulness in the prevention and treatment of such symptoms.

2.3.2 Depression

A large body of literature has been produced investigating the effects of mindfulness on reducing and/or preventing symptoms of depression. Teasdale (1999) introduced MBCT, which is a mindfulness-based program specifically designed as an alternative treatment method for preventing relapse in Major Depressive Disorder. One of the major tenets of MBCT is to help individuals develop metacognitive insight through meditative practice, whereby they become able to view thoughts as fleeting and not necessarily representative of reality. Depression, according to MBCT, is characterized by ruminative, negative, self-focused cognitive-processing patterns, and is maintained through the development of depressogenic themes based on such thoughts (worthlessness, pessimism, uncontrollability, etc.), which in turn negatively effects a person’s physiological state, creating both a cognitive and sensory feedback loop leading to more severe depressive states. Teasdale (1999) asserted that mindfulness allows one to cease his or her negative cognitive processing, and therefore stop both feedback loops, ceasing the depression. The main difference between MBCT and cognitive therapy is that one does not attempt to change the content of their thoughts in MBCT. Rather, the goal is to change one’s relationship to his or her thoughts so that they are no longer viewed as reflections of reality, but instead as events that occur in the mind.

After the development of MBCT, Teasdale, Segal, Williams, Ridgeway, Soulsby, and Lau (2000) investigated the effects of an MBCT intervention program on symptomology and occurrence of relapse of depressive episodes among a sample of 145 patients in recovery from
Major Depressive Disorder. Results revealed that time to relapse (measured in weeks) was significantly decreased for the treatment group compared to the control group, although clinically significant changes were only found for patients who had experienced at least three previous depressive episodes. The lack of clinically significant findings for patients who had experienced only one or two depressive episodes is consistent with Teasdale’s (1999) assertion that ruminative information processing leads to depressogenic themes over time, and those who have experienced few depressive episodes may not have fully developed the negative feedback loop leading to such themes. This finding suggests that MBCT may be more effective for those who have experienced frequently recurring depressive episodes. Furthermore, the average instruction time for the treatment group was five hours, suggesting that even brief mindfulness-infused interventions may have preventative effects for the recurrence of depressive episodes in patients with Major Depressive Disorder (Teasdale et al., 2000).

Barnhofer, Crane, Hargus, Amarasinge, Winder, and Williams (2009) conducted a study using MBCT as an intervention for patients suffering from chronic and recurring depression. Twenty-eight participants who had a history of suicidal ideation and had experienced at least three previous depressive episodes were randomly assigned to receive MBCT in addition to treatment as usual or only treatment as usual. Results revealed a significant decrease in depression symptoms (from severe to mild) for the MBCT group. No significant decrease in symptoms was found for the treatment-as-usual group.

Another study investigating the effects of mindfulness on prevention of depressive episode recurrence was conducted by Kuyken, Byford, Taylor, Watkins, Holden, White et al., (2008). One hundred twenty-three primary care patients who had three or more previous depressive episodes, and who had been treated with antidepressant medication over the previous
six months were recruited. Participants were randomly assigned, using stratified random sampling based on symptoms, to an 8-week MBCT treatment group, plus support to taper or discontinue antidepressant medication, or a traditional antidepressant medication maintenance group. The outcome measure was duration between treatment and recurrence of depressive episode. The results revealed that at a 15-month follow up, 47% of the MBCT group and 60% of the antidepressant maintenance group had experienced depressive relapse. Furthermore, 75% of the MBCT group had completely discontinued antidepressant medication after 15 months. Secondary findings of the Kuyken et al. (2008) study indicated that MBCT was more effective for reducing depressive symptoms and improving quality of life than the maintenance of antidepressant medication maintenance. These findings provide evidence for the efficacy of mindfulness-based practice on decreasing the depressive symptoms and likelihood of depressive episode relapse, and may be an alternative or complimentary treatment to antidepressant medication.

Another hypothesized maintenance component of depression is an over-general autobiographical memory, where individuals recall past events in general terms as opposed to specific occurrences. This approach to memory retrieval is thought to be a maladaptive coping method for dealing with past traumas by suppressing the emotional content of memories. Williams, Teasdale, Segal, and Soulsby (2000) conducted a study using 45 outpatients who had been diagnosed with depression, and had the most recent depressive episode within the previous two years. The participants were randomly assigned to receive treatment as usual or MBCT, and pretest-postest measures of depression and autobiographical memory were administered. The ANCOVA results revealed that over-generality in memory recall was significantly reduced in the treatment group, although change in mood was not significantly different between the treatment
and control group. These findings indicate that mindfulness training may help depressed patients recall past experiences more specifically and accept the emotional content attached to them. Although initially specific memory may not have an adverse effect on immediate mood, it likely would help with the accurate processing of past information, and therefore with the acceptance and improvement of emotional states over time.

Kumar, Feldman, and Hayes (2008) conducted a study testing the effectiveness of a 20-session, three-phase exposure-based cognitive therapy intervention incorporating elements of mindfulness on measures of depression and mindfulness with 29 participants who met the diagnostic criteria for Major Depressive Disorder. The mindfulness principles and techniques used were adapted from MBSR and MBCT. Paired-samples t-tests revealed significant decreases in both measures of depression from pretest to posttest, and growth-curve analysis indicated that there was a linear, week-to-week decrease in depression, rumination, and avoidance throughout the course of the treatment. These findings are promising for the ability of mindfulness practice on decreasing rumination, avoidance behavior, and symptoms of depression components of the therapeutic intervention. One notable strength of this study was that the sample consisted of individuals from diverse ethnic backgrounds (51% Hispanic, 39% Caucasian, 10% other), which adds to the generalizability of the utility of mindfulness practice in the treatment of mood disorders.

In addition to studies that have investigated the direct effect of mindfulness on depression, others have explored the mediating effects of various other variables between mindfulness and depression to gain a better understanding of the relationship.

Hofmann, Sawyer, Ashley, Will, and Oh (2010) conducted a meta-analysis on the effects of mindfulness-based therapies in the treatment of anxiety and depression. The findings revealed
that mindfulness-based therapies were moderately effective for improving symptoms of depression in the overall sample, and were more robustly effective for individuals with mood disorders specifically. These findings corroborate existing evidence that mindfulness-based treatments are effective for treating depressogenic symptoms, especially for those who meet the criteria for a depressive disorder. Few of the studies in the Hoffman et al. (2010) meta-analysis investigated the effect of mindfulness specifically on participants with anxiety disorders, so they discussed the changes in anxiety symptoms among individuals not diagnosed with anxiety disorders. However, there has been a great deal of discussion in the literature about the appropriateness of incorporating mindfulness practice for the treatment of anxiety disorders, and a few preliminary studies have begun to explore the effects.

2.3.3. Anxiety

Anxiety disorders, particularly Generalized Anxiety Disorder (GAD), have been treated in various ways with differing levels of effectiveness; and GAD remains the least successfully treated of all the anxiety disorders (Brown & Barlow, 1992). One of the main approaches for treating GAD in the past four decades has been cognitive-behavioral therapy (CBT; Beck, 1976), although research demonstrating its effectiveness has been inconsistent, and studies have shown that over half of individuals with GAD who receive CBT continue to report significant difficulties after treatment (Roemer & Orsillo, 2002).

The appropriateness of integrating mindfulness practice into the treatment conceptualization of GAD was proposed by Roemer and Orsillo (2002). The authors discussed the DSM-IV definition of GAD, pointing out that the defining feature is pervasive and uncontrollable worry. The pervasive nature of worry in GAD makes exposure-based treatments difficult to use, as the source for the anxiety is sporadic and difficult to define. Wells (2002)
discussed the applicability of mindfulness for the treatment of GAD as understood in a metacognitive model, in which worry is viewed as an active style of coping with anticipated danger and threat, which is triggered by an intrusive thought. Mindfulness may lead individuals with GAD to question their beliefs about the uncontrollability of worry by allowing them to disengage from self-focused processing and negative thinking.

Experiential avoidance is another defining characteristic of GAD, as individuals feel overwhelmed and controlled by their thoughts. The future-oriented and threatening nature of worrisome thoughts causes a flight-or-fight reaction, which motivates further escaping or avoidance behavior (Borkovec, 2002). As opposed to avoiding and resisting worrisome thoughts, mindfulness approaches to GAD treatment suggest observing and accepting thoughts as they arise without judgment.

The generation of and attention to worrisome thoughts characteristic of GAD are often time-intensive; and therefore individuals with GAD literally spend much of their time living in an illusion (Borkovec, 2002). Mindfulness helps one to view thoughts from an outside perspective and determine which, if any, are representative of reality. Therefore, it appears that mindfulness-based approaches would likely be beneficial as an alternative or supplement to CBT in treating GAD, as present-moment focus and nonjudgmental awareness would help to identify the thoughts that truly need to be responded to or reframed (Roemer & Orsillo, 2002).

A preliminary study conducted by Kabat-Zinn, Massion, Kristeller, Peterson, Fletcher, Pbert et al. (1992) investigated the effects of a stress reduction program based on mindfulness meditation (predecessor to MBSR), with 22 participants diagnosed with an anxiety disorder (either panic disorder or GAD). A repeated-measures ANOVA (pretest, posttest, and three-month follow-up using various measures of anxiety and depression) revealed significant
decreases from pretreatment to posttreatment and maintenance of changes at the three-month follow up for all measures of anxiety and depression. Although the sample size was small, and no control group was used, the results did provide preliminary evidence for the beneficial effects of mindfulness practice in the treatment of anxiety.

Miller, Fletcher, and Kabat-Zinn (1995) conducted a three-year follow-up study, which analyzed data collected from 18 of the original 22 participants from the Kabat-Zinn et al. (1992) study. The identical set of outcome measures was administered, and a repeated-measures ANOVA showed that the gains made in reduction of anxiety and depression symptoms persisted at 3-year follow up for all measures. A secondary finding indicated that the majority of the participants (16 out of 18) continued to practice mindfulness in some form, and 10 continued regular formal mindfulness mediation practice after three years. Although this study used a small cohort of individuals, the findings provide some evidence that an 8-week mindfulness-based program may foster long-lasting benefits for individuals suffering from anxiety disorders.

The literature reviewed suggests that mindfulness as a practice may be beneficial for the alleviation of anxiety and symptoms of anxiety disorders, such as worry and difficulty concentrating. Although empirical studies investigating the direct effects of mindfulness on anxiety are lacking, preliminary evidence suggests that mindfulness may be a plausible alternative or supplement to other prevalent approaches to treating anxiety disorders. Mindfulness has also been explored as a possible method for improving attention, and a review of such research will be included in the next session.

2.3.4 Attention

Mindfulness has been considered as a beneficial approach for the treatment of attention difficulties. The intentional practice of becoming more aware and accepting of internal and
external experiences from moment to moment may increase attentional acuity and capacity over time. Zylowska, Ackerman, Yang, Futrell, Horton, Hale et al. (2007) conducted a study with 24 adults and adolescents diagnosed with Attention-Deficit Hyperactivity Disorder (ADHD), examining the effects of an 8-week mindfulness program on reducing symptoms of ADHD and improving performance on neuropsychological tasks. Results revealed that 78% of participants reported a reduction in ADHD symptoms, and 30% of the participants reported clinically-significant reductions. On the neuropsychological tasks, significant improvements were found on measures of attentional conflict (inhibition) and set-shifting (self regulation).

Jha, Krompinger, and Baime (2007) hypothesized that mindfulness training may improve some specific aspects of attention (orienting, alerting, and conflict monitoring). They conducted a study comparing 3 groups (experienced meditators who attended a 1-month intensive meditation retreat, mediation-naïve participants who completed an MBSR training program, and a mediation naïve control group). The MBSR group improved in all areas of attention compared to the control group, indicating that mindfulness practice may improve involuntary-response selection processes. Also, the retreat group showed significant improvement on the alerting task compared to the MBSR and control group, and the magnitude of the differences were correlated with amount of prior meditation experience, indicating that long-term mindfulness practice may in time improve receptive attention (Jha et al., 2007). These findings support the notion that mindfulness practice may improve certain subsystems of attention, which increases with continued mindfulness practice.

A study conducted by Moore and Malinowski (2009) compared level of mindfulness and performance on attention and cognitive flexibility tasks between non-meditators and experienced meditators. Findings revealed significant relationships in the hypothesized direction between
mindfulness and tasks of attentional control, indicating that high levels of mindfulness are related to high processing speed, high attentional and inhibitory control, reduced attentional errors, accuracy of visual scanning, and carefulness.

A study conducted by Ortner, Kilner, and Salazo (2007) compared university students randomly assigned to three conditions (a 7-week mindfulness meditation course, a 7-week relaxation and body awareness course, or a wait-list control group). The Emotional Interference Task was administered to measure distraction from unpleasant stimuli, and Skin Conduction Responses were conducted to measure emotional reactivity. Results indicated that only participants in the mindfulness meditation group had reduced interference from unpleasant stimuli, but only after 4 seconds of being shown unpleasant scenes (Ortner et al., 2007). This interesting finding suggests that although mindfulness practice may not prevent the orientation of attention to unpleasant stimuli initially, it may foster more rapid disengagement of attention from unpleasant stimuli. The implications of this finding suggests that mindfulness may lead to reduced tendency to ruminate on negative thoughts and feelings, increased ability to solve problems with emotional interference, and increased focus in the midst of trauma or adversity.

Evans, Baer, and Segerstom (2009) investigated the effects of mindfulness on persistence on a difficult task. One hundred forty-two undergraduate psychology students completed self-report measures of mindfulness, then attempted to complete 11 anagrams. The first anagram had no solution, and the following 10 were mild to moderate in difficulty in order to detect persistence. Findings revealed that the nonreactivity and nonjudgment facets of mindfulness were significantly related to persistence. This finding suggests that the tendency to respond nonjudgmentally and to be nonreactive to thoughts and emotions contributes to increased persistence on a difficult task.
The literature clearly shows that mindfulness is associated with improvements in depression, anxiety, attention, and psychological well-being. By reducing worry and rumination about possible future scenarios and past experiences, mindfulness allows one to be more fully in the present and more prepared to handle difficult situations as they arise. Developing a more mindful view of the world and learning specific mindfulness practices (many of which can be learned easily and quickly) could help individuals view their current difficulties from an objective standpoint without becoming overly attached to or engulfed by them, thereby transforming possible breakdowns into breakthroughs.

The literature reviewed in this section offers evidence for the capacity of mindfulness to improve coping ability in many areas by decreasing rumination and judgment and increasing equanimity and persistence. One area in which increased coping skills are becoming increasingly important is career problem solving and decision making. Making career decisions and solving career problems, such as finding employment in a difficult job market, are areas in which the incorporation of mindfulness practices and viewpoints may prove beneficial. The next section reviews literature that has discussed the incorporation of mindfulness in career development.

### 2.4 Mindfulness in a Career Context

“Work is only a part of life. But work is life only when done in mindfulness” (Hahn, 1976, p. 60)

Jacobs and Blustein (2008) discussed the incorporation of mindfulness as a method to help individuals cope with uncertainty involved in finding employment. Such feelings of insecurity are becoming increasingly prevalent with the recent dramatic and rapid changes in the national and global economy, indicating the need for additional preventative career interventions.
Jacobs and Blustein (2008) asserted that fostering mindfulness-based viewpoints and teaching mindfulness skills may help clients with decision making in the face of uncertainty. Mindfulness may help individuals cope with employment uncertainty by decreasing their worry about the future and helping them to become more in touch with the task at hand and see more clearly the elements at play (Jacobs & Blustein, 2008). Developing a more mindful view of the world and learning specific mindfulness practices could help individuals view their career problems from an objective standpoint without becoming overly attached, allowing for more nonreactive intentional behavior.

Mindfulness has also been hypothesized as a method for reducing stress in working adults, as investigated by Klatt, Buckworth, and Malarkey (2008). Forty-eight full-time university faculty and staff were randomly assigned to receive a shortened, 6-week MBSR training program or a wait-list control group. Between-groups t-tests revealed a significant increase in MAAS-measured mindfulness and significant decrease in perceived stress for the treatment group. Those who received the mindfulness intervention reported less work-related stress than the control group, indicating that mindfulness training may be an effective approach to alleviate work-related stress.

A recent study conducted by Hulsheger, Hugo, Alberts, Feinholdt, and Lang (2012) explored the benefits of mindfulness in relation to job satisfaction and emotional exhaustion at work. Their findings revealed that mindfulness was associated with more job satisfaction and less emotional exhaustion. Hulsheger et al. (2012) conducted a separate experimental study in which participants were randomly assigned to a self-training mindfulness intervention group or a control group. The results revealed that those in the mindfulness group reported significantly greater job satisfaction and significantly less emotional exhaustion than the control group at
posttest, confirming the findings from their first study. These findings suggest that mindfulness promotes job satisfaction, and may help prevent burnout due to emotional exhaustion.

In 2011, Zhang completed a thesis which investigated the role of mindfulness in its relationship to career indecision and occupational engagement in a sample of 166 college students. The findings supported the hypothesis that mindfulness is associated with lower emotive career indecision, suggesting that those who are more mindful have fewer career decision-making difficulties stemming from emotional concerns. More specifically, the findings revealed that those who scored higher on dispositional mindfulness were more in touch with internal and external stimuli, less absent minded, less preoccupied with past and future, had a higher sense of individual control, less anxiety regarding uncertainty, a better understanding of occupational identity, and less pessimistic thoughts related to the career problem. Additional results revealed that higher levels of mindfulness were moderately associated with higher levels of occupational engagement, indicating that those who were more mindful were more likely to engage in career-exploration and experiential activities. These findings suggest that mindfulness may help individuals come to a clearer understanding themselves, overcome personal difficulties, and foster more objective and focused information-seeking regarding occupations. Zhang’s (2011) findings provide support not only for the benefits of mindfulness in promoting positive functioning and overall well-being, but also provides initial empirical support for the direct benefits of mindfulness in promoting effective career problem solving and decision making.

Except for the Zhang (2011) thesis, no other empirical studies could be located investigating the incorporation of mindfulness into career counseling. Additionally, except for the Jacobs and Blustein (2008), Klatt et al., (2008) and Hulsheger et al., (2012) articles, no other
literature was located discussing mindfulness explicitly in a career or work context. The dearth of literature discussing and/or investigating mindfulness in a career context indicates a clear gap. The Zhang (2011) thesis provided an excellent glimpse into the possible benefits of mindfulness in career counseling. The current study intends to build on that preliminary evidence by providing a theoretical framework within which to continue exploring and better understand the benefits of incorporating mindfulness in a career context. Mindfulness has been shown to relate to a number of elements that have been identified as the primary contents of career problem solving and decision making (self-knowledge, metacognitions, decision-making skills) within the context of the cognitive information processing (CIP; Sampson et al., 1996) theory of career development. The following section will discuss the inclusion of mindfulness in career development through a CIP theoretical perspective.

2.4.1 Theoretical Framework

Providing a framework to conceptualize the usefulness of mindfulness in career development is important in order to determine the areas in which mindfulness may prove helpful, and for which types of clients. CIP theory provides a theoretical framework for conceptualizing the nature of one’s career problems and career decisions, and his or her readiness to engage in the decision-making process. CIP theory asserts that the content and process of career decisions are the major components involved in determining the effectiveness of career decision making and problem solving (Sampson et al., 2004).

The content includes what one must know in order to make a decision, and is broken down into self knowledge, options knowledge, decision-making skills, and metacognitions; which is outlined in the Pyramid of Information Processing (See Figure 1). Self knowledge refers to one’s values, interests, skills and employment preferences. Clarifying self knowledge
through various activities and instruments helps clients to identify specific options that are likely to satisfy the things that are important to them, that will be interesting and offer enjoyment, and that will allow them to use their skills. Individuals will continue to clarify their values, interests, and skills as they progress through life, and learning to reflect upon and reevaluate self knowledge regularly will lead to more successful decisions (Sampson et al., 2004).

Options knowledge pertains to knowing specifics of various options and having a schema to make sense of and organize such knowledge. Being open and receptive to various avenues of information gathering allows one to digest a great deal of information in an unbiased manner. Decision-making skills include generic information processing skills and decision-making styles that one uses to solve problems and make decisions. Navigating the decision-making process effectively requires various skills and a certain level of adaptability. Being mindful of both the rational and intuitive components to career decisions is important in order to move forward and execute a choice (Sampson et al., 2004).

Metacognitions govern strategies used to solve career problems through self-talk, self-awareness, and monitoring and control. Self talk refers to the silent self-dialog regarding how well one is completing a given task. Positive self talk keeps one motivated and engaged in solving a career problem, while negative self talk inhibits the process of decision making. Self awareness is the extent to which one is aware of him or herself as he or she progresses through the career problem-solving and decision-making process. One must be aware of how his or her thoughts, emotions, and behaviors interact; and how they are responding to external cues. Monitoring and control refers to the extent to which one is able to observe where he or she is in the decision-making process and control the amount of attention and effort required to move forward and complete a given task (Sampson et al., 2004).
The process of career problem solving and decision making occurs in a series of stages: Communication, Analysis, Synthesis, Valuing, Execution, and reemergence to Communication, which forms a cycle (CASVE Cycle, See Figure 2). The Communication stage consists of defining the gap between where one is and where he or she wants to be. One must consider both internal and external cues when discerning his or her gap, and the cultivation of mindfulness would likely assist with the clarity of this process. Bishop et al. (2004) described a self-regulation model of mindfulness in which cognition typically occurs in the service of goals, and that one is constantly in the process of “comparing what is with what is desired”, (p. 236), which is similar to the gap involved in the Communication stage of the CASVE cycle (Sampson et al., 2004).
The Analysis stage involves one gaining a better understanding of his or her values, skills, interests, employment preferences, options, decision-making skills, and metacognitions that influence his or her current career problem, and working to improve areas that will better prepare him or her to make an effective decision (Sampson et al., 2004). Self awareness is crucial in the Analysis stage, and increased mindfulness has been hypothesized and shown to lead to a clearer understanding of oneself and the world (Kabat-Zinn, 1994).

The Synthesis stage involves expanding and narrowing a list of options to a manageable number through careful research and the process of elimination. The Valuing stage involves considering the costs and benefits of the remaining options, prioritizing options, and ultimately making the decision. One must consider all of the variables involved with each option, including the personal, familial, cultural, and societal factors at play (Sampson et al., 2004). Increasing mindfulness could help individuals to view all of the variables involved with a career problem from an unbiased standpoint, allowing them to weigh the pros and cons and prioritize their options more clearly. The Execution stage involves developing a plan of action to implement the individual’s first choice. Returning to the Communication stage involves reflecting upon the decision to determine if the gap has been closed (Sampson et al., 2004). The self-reflective nature of mindfulness would likely assist individuals in gaining heightened awareness of their thoughts and emotions regarding a career decision and help them determine whether or not a gap has been successfully closed.
CIP theory can be used as a framework to understand the possible benefit of incorporating mindfulness into career counseling. A number of authors have discussed and investigated mindfulness in terms that seem congruent with the content elements of CIP. Specifically, mindfulness has been viewed as a method for discerning difficult decisions in life, as well as a way to inform everyday decisions. Mindfulness has also been discussed as a method for clarifying values, and for being open to gaining a nonbiased understanding of different options. Probably the most direct connection to CIP is the notion of mindfulness as a metacognition, terms in which it has been prevalently referred to in recent literature.
2.4.2 Mindfulness and Metacognition

Most accounts of metacognition (including CIP theory; Sampson et al., 2004) make a basic distinction between metacognitive knowledge (including declarative, procedural, and conditional knowledge) and metacognitive control processes (using knowledge to regulate cognitions and behaviors). Regulating cognition and behaviors requires careful planning, monitoring progress, and evaluating performance (Schraw & Moshman, 1995).

A number of articles refer to mindfulness as a metacognition in similar contexts (i.e., Teasdale, 1999; Teasdale et al., 2002; Brown & Ryan, 2003; Wells, 2002). Teasdale et al. (2002) described metacognitive awareness as a capacity to view negative thoughts and feelings as mental events that take place in the mind as opposed to reflections of the self or reality. This depiction of thoughts and emotions allows one to witness and identify (monitor) different types of thoughts and feelings through mindful observation, and disrupt (control) patterns of dysfunctional thinking and negative emotions. Teasdale (1999) distinguished between metacognitive knowledge (knowledge regarding the transient and often inaccurate nature of thoughts) and metacognitive insight (actually experiencing the transient nature of thoughts). Although metacognitive knowledge can be helpful to gain an understanding of the nature and impact of thoughts, metacognitive insight allows one to step back from thoughts and see them clearly, which in turn allows one to prioritize the salience of thoughts and make sensible decisions about whether or not to act on them. Teasdale (1999) asserted that the practice of mindfulness, or nonjudgmental observing of one’s thoughts fosters greater metacognitive insight, thereby increasing heightened clarity of thought and sense of being able to manage one’s life.

Wells and Matthews (1996) described a self-regulatory executive function model of metacognition, with three levels (stored knowledge and beliefs in long-term memory, online
processing and execution of coping strategies requiring attention, and reflexive processing predominantly operating outside of conscious awareness). According to Wells (2002), mindfulness may support cognitive restructuring by offering a means of activating heightened awareness in all three levels of metacognition, by dispelling the influence of maladaptive metacognitive beliefs on online processing, and by introducing flexible new ways to respond to perceived or actual threat (e.g., taking objective, proactive steps toward a solution as opposed to avoiding or resisting stressful situations).

Metacognition has also been referred to as “any knowledge or cognitive process that monitors or controls cognition” in some way (Fernandez-Duque, Baird, & Posner, 2000, p. 292). The processes involved in metacognition include both bottom-up (monitoring) and top-down (controlling) processes. This is especially important in novel situations where there is no preconditioned schema to achieve a particular goal. Therefore, metacognition is crucial in decision making and performance on tasks that are not routine. As we have seen, mindfulness involves monitoring thoughts and emotions as they arise in the present moment, and would therefore be considered a metacognition according the Fernandez-Duque et al. (2000) definition. Since mindfulness can be considered a metacognition, and metacognition is important when making decisions, then mindfulness practice may help foster improved decision making.

2.4.3 Mindfulness and Decision Making

Becoming more aware and observant of decision processes may help to improve the quality of decisions. Martin (1997) suggested that mindfulness is a core process within integrative decision making, since it facilitates an attitude of openness. By watching, reevaluating, and discovering through nonjudgmental present-moment awareness, one is likely to intuit the best choice in a given situation. Brown et al. (2007b) described mindfulness as a means
to gain increased metacognitive insight; allowing one to step outside of internal and external demands and pressures resulting in greater insight about one’s desires, needs and values; and ultimately greater choicefulness in behavior. Huber (2010) conducted a series of experiments examining the effect of induced mindfulness (by having participants discuss their prescriptive beliefs about how decisions should be made before making decisions) on different types of decision making (charitable giving, dating, policy evaluations, and movie preferences).

Participants consisted of between 47 and 108 undergraduate students, randomly assigned to a mindfulness-induced condition or a control group (who disclosed their prescriptive beliefs about how decisions should be made after making decisions). Findings differed based on the type of decision, but overall, results showed that the mindfulness condition tended to weigh objective attributes more strongly than emotional attributes (except in the case of charitable giving, in which both conditions weighted emotional attributes more strongly). Furthermore, those in the mindfulness group tended to make decisions more closely in line with their prescriptive beliefs compared to the control group (Huber, 2010). These findings offer evidence that mindful decision making tends to be more objective, and becoming aware of beliefs about how decisions should be made may make it more likely that one decides more in accordance with those beliefs.

Although research is lacking explicitly investigating the effects of mindfulness on decision making, the articles reviewed provide preliminary evidence for the beneficial impact of mindfulness on decision making. When making decisions, it is important that one consider knowledge about oneself, including his or her values, interests, and skills (Sampson et al., 2004), and mindfulness may help to clarify self knowledge. The next section will review articles that have discussed and/or investigated the effects of mindfulness on various aspects of self knowledge.
2.4.4 Mindfulness and Self Knowledge

Many authors have described the capacity of increased mindfulness to foster self-exploration and self-understanding (Kabat-Zinn, 1994; Tolle, 1999; Brown et al., 2007; Hayes et al., 2006). Shapiro et al. (2007) specifically discussed mindfulness as an approach to clarify values and recognize what is meaningful and important. They asserted that often values are conditioned by family, culture, and society; and many times individuals are unaware of whose values are driving their decisions. When one is able to observe and reflect upon his or her values with greater objectivity, one is able to rediscover and choose values more in line with his or her true self. Kabat-Zinn (1994) discussed the capacity of mindfulness practice to bring about a vision that is “deep and tenacious and that lies close to the core of who you believe yourself to be, what you value in your life, and where you see yourself going” (p. 76).

Santorelli, (1992) conducted an in-depth mixed-methods case study analysis of 6 participants enrolled in a four-month long weekly mindfulness-mediation training program (a predecessor to MBSR) conducted at an outpatient, hospital-based behavioral-health clinic. The study’s purpose was to explore the effects of mindfulness training on the development of coping strategies and changes in attitude and self-perception. In-depth semi-structured interviews were conducted throughout the study to examine the ongoing experiences of each participant. The primary researcher also participated in each of the mindfulness training sessions to observe the participants in the natural field setting.

The qualitative data was analyzed using inductive, hypothesis seeking methods, in which three categories were generated representing themes and patterns (learning mediation, application of mediation in daily life, and perception of self). All participants evidenced attitudinal and behavioral changes throughout the course of the study, including an increased
awareness of oneself, heightened capacity to adapt to change, increased self-trust, and increased willingness to encounter adversity. Additionally, pre-intervention data was collected using the Experience Recall Test (a measure of self-knowledge development), and findings suggested that participants at varying stages of self-knowledge experienced the mindfulness training differently. Those with less advanced self-knowledge used mindfulness to discover patterns of behavior and origins for those patterns, and to find ways to change such patterns. Those with more advanced self-knowledge tended to view mindfulness training as a method for self-reflection as opposed to self-improvement (Santorelli, 1992). The implications of these findings for career development indicate that individuals with a clear understanding of their values may be naturally more reflective, and those unsure of themselves may be more interested in changing maladaptive behavioral patterns. Increased mindfulness would likely be beneficial and facilitative for both groups, but in different ways.

A major limitation to this study was that the small sample did not generate adequate power to find statistical significance; however, the small sample allowed the researcher to conduct frequent in-depth interviews, and thoroughly explore participants’ experience with mindfulness meditation and changes in self perceptions. Also, since the researcher was involved in the meditation trainings, researcher bias may have influenced how information from interviews was gathered and processed. Despite these flaws, the qualitative data collected offered an interesting and informative exploration into the connections between mindfulness and self-knowledge, which indicated that mindfulness training may be beneficial for increasing the clarity of self-knowledge, and that those with differing levels of self-knowledge may view mindfulness practice differently.
As discussed in the previous sections, mindfulness seems to be related to a number of areas that are important in solving career problems and making career decisions. Probably the most explicit connections are between mindfulness and metacognitions, and between mindfulness and certain aspects of self-knowledge. To explore these connections further, the next two sections will focus on mindfulness as it relates to cognitions and identity formation in career development.

2.4.5 Career Thoughts

Aaron Beck (1971) identified cognitions as a primary determinant of individuals’ overall affective states and psychological well-being, explaining that our interpretation of experiences strongly influences mood, which in turn influences mental health. Within the framework of cognitive therapy, negative thoughts are believed to have a damaging effect on our feelings and motivation to behave in an effective way (Beck, 1976), which causes difficulty in processing and effectively using information to solve problems. Making effective career decisions requires processing and using information about oneself (e.g., values, interests, skills) and about available options. Effective decision making also requires appropriate and motivated action to be taken throughout the career choice process (Sampson, Reardon, Peterson, & Lenz, 2004). It can therefore be deduced that negative thoughts likely have a damaging effect on the ability and motivation to process information about oneself and one’s options, and on one’s ability to execute a plan of action in order to effectively solve career problems and make career decisions.

Dysfunctional career thoughts include the cognitions, attitudes, and beliefs that have a negative impact on one’s ability to make effective decisions, and have been shown to lead to difficulties in career problem solving and decision making (Sampson, Peterson, Lenz, & Reardon, 1996). The Career Thoughts Inventory (CTI; Sampson et al., 1996) was developed to
measure the occurrence of dysfunctional career thoughts, and is based on Cognitive Information Processing (CIP) theory (Sampson et al., 2004) and the cognitive approach to therapy (Beck, 1976). The CTI includes a total score and three construct scales: Decision-Making Confusion, Commitment Anxiety, and External Conflict (Sampson et al., 1996). Decision-making confusion refers to difficulty engaging in the decision-making process, accompanied by negative emotions. Commitment anxiety refers to difficulty making a commitment to a career choice, specifically related to anxiety about the decision-making outcome. External conflict refers to an inability to balance one’s own perceptions concerning self with the perceptions of others, and difficulty taking responsibility for one’s own decisions (Sampson et al., 1996).

Various studies have investigated the impact of dysfunctional career thoughts, and findings have shown significant relationships to emotional intelligence (Dahl, Austin, Wagner, & Lukas, 2008), decision-making style and cognitive thought patterns (Paivandy, Bullock, Reardon, & Kelly, 2008), depression (Saunders, Peterson, Sampson, & Reardon, 2000), symptoms of trauma (Strauser, Lustig, Cogdal, & Uruk, 2006), vocational identity (Yanchak, Lease, & Strauser, 2005; Strohm, 2008), and self-efficacy and satisfaction with occupational choice (Wright, 2001). Mindfulness has been shown to lead to decreased rumination, symptoms of anxiety, and other indicators of negative thinking. Determining the linkages between mindfulness and dysfunctional career thoughts would likely provide a better understanding of the possible benefit for the inclusion of mindfulness in career counseling. Mindfulness has also been hypothesized to facilitate identity formation, which may constitute another linkage to career development.
2.4.6 Vocational Identity

Erickson (1968) described identity formation in stages, with an underlying principal of the reformulation of understanding oneself. In order to successfully progress through the various stages in a stable manner, self-observation and the regulation of emotions and behaviors are necessary, especially during the identity formation vs. identity confusion stage. Identity formation is an integral component of psychological development, and successfully navigating the various stages of development requires the formation of a strong personal identity.

Furthermore, Erickson (1968) stated that the development of an occupational identity was the most important aspect in the quest for an overall personal identity, as much of who we become revolves around the work we perform.

Blustein, Devenis, and Kidney (1989) found that ego identity status was related to occupational exploration and commitment, suggesting that identity formation is closely related to career-development tasks. Career indecision has been hypothesized to be the result of difficulties in forming personal identity and vocational identity (Holland & Holland, 1977). Vocational identity refers to “the possession of a clear and stable picture of one’s goals, interests, personality, and talents” (Holland, 1997, p 42). The possession of a clear vocational identity has been shown to lead to increased confidence in making career decisions, and the failure to form a stable and clear vocational identity often results in career indecision (Holland, Daiger, & Power, 1980). Super, Savickas, and Super (1996) suggested that establishing a stable vocational identity serves as the basis for making occupational choices that are a good fit, and that individuals who possess concrete goals, clear interests, stable personality traits, and knowledge about their talents are more likely to be successful in making career decisions than those with lower levels of vocational identity.
Research findings support the notion that vocational identity is related to a number of positive career-related outcomes. Carson and Mowsesian (1993) found that higher levels of vocational identity are associated with greater job satisfaction, suggesting that individuals who have a clear depiction of their personal talents, interests, and goals are more likely to be satisfied with their job. Gushue, Scanlon, Pantzer, and Clarke (2006) found a strong relationship between high levels of vocational identity and career exploratory behavior, indicating that individuals are more likely to engage in proactive career exploration when their vocational identity is clear and stable. Higher levels of vocational identity have also been found to relate to overall psychological well-being, particularly the purpose in life dimension (Strauser, Lustig, & Ciftçi, 2008).

Lower levels of vocational identity have been found to be related to higher levels of dysfunctional career thoughts and symptoms of trauma (Strauser, Lustig, & Cogdal, 2006). Vocational identity and dysfunctional career thoughts were also found to be related among individuals with cognitive and physical disabilities (Yanchak, Lease, & Strauser, 2005). The findings from these studies suggest that those with higher levels of vocational identity are less likely to engage in negative career thinking regarding their career decisions. Hirschi (2010) found a strong relationship between differentiated interest structure and vocational identity, indicating that when one has clearly-defined occupational interests, he or she is more likely to have a clear and stable picture of vocational identity. Since mindfulness has been hypothesized to lead to a clearer formation of personal identity, there may be a connection between level of mindfulness and vocational identity. It is intuitive that a clear depiction of one’s goals, interests, and talents would be related to an awareness of his or her thoughts and emotions, intentionality of behavior, and an attitude of openness and acceptance.
As discussed earlier, (Brown et al., 2007b), mindfulness practice leads to improved emotional regulation and clearer self-knowledge and self-observation, and therefore may be an efficacious method for improving the navigation of identity formation (Verni, 2001). Brown, Ryan, and Creswell (2007a) also suggested that becoming more mindful of present-moment experience (e.g., thoughts, desires, memories, emotions) may foster a clearer recognition of the nature of personal identity.

Shapiro et al. (2007) described mindfulness as a method of stepping outside of one’s inner commentary of his or her life, which allows for the witnessing of one’s self-constructed story. This perspective allows one to shift their identity from the contents of consciousness to pure awareness. Hayes et al. (2006) described this identity shift brought about by increased mindfulness as a shift from “self as content” to “self as context.” Although numerous authors have discussed the likely benefit of mindfulness in promoting identity development (Shapiro et al., 2007; Hayes et al., 2006, Kabat-Zinn, 1994), empirical studies investigating this possible effect are lacking.

2.4.7 Vocational Decision-Making Style

The way in which one approaches a decision-making situation is referred to as decision-making style (Arroba, 1977). Harren (1979) distinguished between three styles of decision making (rational, intuitive, and dependent), and asserted that the rational style was most effective. This assertion was based on the tenet that taking a more systematic approach to a decision-making task, as opposed to relying on one’s own feelings or the opinions of others, would lead to a more sensible and favorable outcome. Additionally, it was believed by Harren (1979) that intuitive decision making leads to unfavorable outcomes as it is associated with the tendency toward impulsivity and reliance on fantasy. Furthermore, it was believed by Harren that
individuals relied predominantly on one of the three styles, which leaves little room for the incorporation of various styles in complex decision making.

Walsh (1985) developed the Vocational Decision Style Indicator (VDSI) to measure decision-making style without the need for an individual to endorse one predominant style (either rational, intuitive, or dependant). In order to accomplish this, Walsh used Jungian typology as a theoretical basis for the development of the VDSI. Jung’s (1923) conception of psychological types included cognitive and affective modes of functioning, where individuals approach tasks on a series of spectrums (internal-external, thinking-feeling, sensing-intuiting), which can be combined in a variety of ways. Jung’s theory of personality types asserts that all attitudes and functions are in all personality types, but are manifested in differing proportions based on the situational task; although individuals begin to form patterns in personality type from an early age, which is then modified throughout life by various environmental and personal changes. This theory is consistent with the belief that individuals may use varying levels of differing styles given the nature and complexity of the decision or problem task; although most tend to rely on particular styles.

Walsh (1985) simplified Jung’s typology for use with the VDSI by eliminating the sensing-intuiting dimension due to the inconclusive evidence supporting its validity in the literature. Therefore, the VDSI uses two scales to measure vocational decision-making style (Introverted-Extroverted, and Thinking-Feeling). The thinking end of the TF scale refers to approaching a decisional task with a systematic, rational strategy; while the feeling end refers to taking an intuitive approach to decision making. The external end of the EI scale refers to taking an active, independent approach to making decisions, while the introvert end refers to a more passive, dependent posture.
A number of studies have used the VDSI to study how decision-making style relates to other career-related constructs. Blustein and Phillips (1988) studied decision-making style in relation to career exploration, and found that high levels on the thinking scale correlated with more career exploration, which suggests that those who take a more rational approach to career decision making are likely to more thoroughly consider and explore various options than those who rely predominantly on intuition. Amir and Gati (2006) investigated the relationships between various career decision-making difficulties and vocational decision-making styles as measured by the VDSI. They found low correlations between career decision-making difficulties and the thinking (-.25) and introvert (-.35) types, suggesting that thinking and introvert types are slightly associated with fewer career decision-making difficulties. Farrar (2009) studied the relationships between VDSI vocational decision-making style and career decision-making difficulties in low SES high school students. The findings corroborated the Amir and Gati (2006) study, finding that those using feeling-oriented and extroverted styles endorsed higher levels of career decision-making difficulties. It is important to note that the decision-making difficulties measured include a systematic use of available information to make decisions, which can be thought of as a rational task; and therefore such difficulties would be expected for those using primarily a feeling approach to decision making.

Harren’s (1979) conception and Walsh’s (1986) re-conception of vocational decision-making style both assumed and asserted that a rational approach to decision making is superior to other styles; however, many authors have suggested that employing a balance of rationality and intuition in decision making may be the most effective approach. Phillips, Pazienza, and Ferrin (1984) studied the relationships between vocational decision-making style and problem solving, and found that individuals who endorsed both the rational and intuitive vocational
decision-making style were more likely to approach problem-solving tasks with greater confidence and sense of personal control than those who endorsed the rational style alone. Rubinton (1980) found that intuitive decision makers tend to emphasize emotional awareness in their decisions, which is likely to facilitate complex problem solving. These findings suggest that although rationality is important in decision making and problem solving, balancing logic with intuition may lead to more confidence and control regarding emotions involved with career decision making. Kreishok, Black, and McKay (2009) discussed the limits of rationality in decision making, and noted that unconscious thought may play a role in solving complex problems that are beyond the capacity of intellect alone. They concluded that both rational and intuitive processes are needed in effective decision making, and that taking a balanced approach to complex career decisions is essential in order to adapt to the rapidly and continually-changing conceptualization of careers.

Epstein, Pacini, Denes-Rai, and Heier (1996) also proposed a career decision-making model in which rationality and intuition interact as two parallel processes, in which the intuitive system is believed to be automatic and preconscious. Kreishok (1998) appeared to corroborate this interaction by discussing complex decision making as a process that is mostly unconscious, and that rationality can only be useful to a certain extent. Hartung and Blustein (2002) also discussed the need for both rational and intuitive models of career decision making to be integrated into career counseling practice based on Frank Parsons’ socially responsible vision for counseling. They asserted that Parsons’ conception of “true reasoning” includes more than choosing what appears to be most logical, but also paying attention to the emotions and subconscious feelings involved in decision making.
The literature reviewed in this section makes apparent that a balanced approach to decision making is advantageous to relying predominantly on one element (rational, intuitive, self, others). Being open to experience and using a combination of all styles is likely the most efficacious approach when solving complex problems. Since personality traits are believed to be dispositional and stable over time; it is likely difficult to change the way in which individuals make decisions, although exploring how various personal styles relate to other factors and influence relationships is efficacious. The next section will review studies that have investigated the relationship of mindfulness to personality.

2.5 Mindfulness and Personality

A number of authors have explored mindfulness in terms of its relation to personality in order to gain a better understanding of individual differences in mindfulness. Mindfulness has consistently been found to relate to higher levels of NEO Openness (Baer et al., 2004; Brown and Ryan, 2003; Van den Hurk, Wingens, Giommi, Barendregt, Speckens, and Van Schie, 2011). Van den Hurk et al. (2011) found that NEO Openness and Extraversion personality traits were higher in a group of experienced meditators than non-meditators, suggesting that those who endorse higher levels of mindfulness, as well as those who practice meditation, tend to be more open to experience and more extroverted. Mindfulness has also been found to relate to conscientiousness (Giluk, 2009), suggesting that those who are more mindful tend to have higher self-discipline and self-regulation, and are likely thoughtful and deliberate.

Peters, Erisman, Upton, Baer, and Roemer (2011) studied the relationship between mindfulness and impulsivity, and found negative relationships between facets of mindfulness (nonreactivity, nonjudging) and impulsive behavior, suggesting that higher levels of mindfulness...
likely lead one to be more calm and systematic, and less emotionally-reactive in the decision-making process.

It has also been found that individuals endorsing higher levels of mindfulness tend to encode information externally more so than the general population (Herndon, 2008), suggesting that mindfulness leads to greater awareness of external circumstances.

The findings from the studies in this section taken together support the notion that mindfulness supports more balanced intuitive-rational and internal-external decision making without increased impulsivity or dependence, although it is unclear how decision-making style may influence the relationship between mindfulness and other outcomes. Therefore, it will be efficacious to investigate whether decision-making style interacts with mindfulness to influence various outcomes, such as dysfunctional career thoughts and vocational identity.

2.6 Summary of Literature Review

It is apparent that the study of mindfulness in psychological literature has increased dramatically over the past decade, and will likely continue to grow exponentially as it becomes incorporated into additional areas, such as social psychology, sociology, industrial/organizational psychology, sports psychology, and career development. The literature reviewed in this chapter consisted of qualitative studies, correlational studies, experimental designs, as well as various books and commentaries focusing primarily on mental-health benefits of mindfulness.

Based on the literature reviewed, it is clear that mindfulness practice leads to increases in measured mindfulness, changes in brain anatomy, increased behavior and emotional regulation, increased coping; and decreased symptoms of depression, anxiety, and attention difficulties. However, numerous methodological flaws were noted in many of the studies.
Common flaws included small sample sizes, lack of control groups; and predominantly female, Caucasian samples. Nevertheless, the large number of studies that have been conducted provide a great deal of evidence for the benefit of mindfulness in various contexts, and continued research will help to bolster its already well-established positive effects.

The research findings reviewed are very promising for the benefit of incorporating mindfulness into mental health and career counseling, given its capacity to promote positive coping and adjustment, and a calm, contemplative mind leading to psychological growth. Mindfulness can prepare one for various life transitions by promoting reductions in avoidance behavior and over-engagement with emotions, so that one can engage with the task at hand without becoming overwhelmed or getting stuck (Hayes & Feldman, 2004). Mindfulness has also clearly been shown to lead to enhanced metacognitive functioning and improved self-regulation, indicating that when one is more mindful, they are able to disengage from self-concern, allowing for increased attentiveness to others and the environment (Brown et al., 2007b).

Mindfulness has also been shown to lead to improvements in many areas thought to be directly related to career development (decision making, clarification of self-knowledge, metacognitive insight, identity formation); and studying these relationships more closely will contribute to a better understanding of the benefits of mindfulness. Specifically, investigating the relationships between mindfulness and dysfunctional career thoughts and between mindfulness and vocational identity will help to foster a better understanding of how mindfulness may improve indicators of career readiness. Examining the way in which decision-making style interacts with those relationships will provide additional clarity as to how and for whom mindfulness may be beneficial with regard to improving career thoughts and vocational identity.
The Zhang (2011) thesis provided initial support for incorporating mindfulness into career counseling by demonstrating the relationships between mindfulness and several career-related constructs (various indicators of career indecision and occupational engagement). With the exception of the Zhang (2011) thesis, there is a clear gap in the literature investigating mindfulness in a career context. In order to build on this initial body of evidence, the present study posited research questions and hypotheses informed by the literature, and employed a sound theoretical framework with which to choose measures and interpret the results. Using the cognitive information processing (Sampson et al., 2004) theory of career development as a theoretical framework, the purpose of the current study is to investigate the relationships between mindfulness and selected career development constructs (i.e., dysfunctional career thoughts, vocational identity). Additionally, vocational decision-making style was examined in terms of its main and moderating effects. The measures to be used for the moderator and outcome variables were selected based on their correspondence with one of the CIP content areas (decision making, metacognition, self-knowledge). The research questions that this study intends to address are as follows:

Q1: What is the effect of mindfulness on career thoughts?
Q2: What is the effect of mindfulness and vocational identity?
Q3: What is the effect of thinking-feeling decision-making style on career thoughts?
Q4: What is the effect of thinking-feeling decision-making style on vocational identity?
Q5: What is the effect of internal-external decision-making style on career thoughts?
Q6: What is the effect of internal-external decision-making style on vocational identity?
Q7: What is the moderating effect of the thinking-feeling vocational decision-making style on the relationships between mindfulness and career thoughts?
Q8: What is the moderating effect of the thinking-feeling vocational decision-making style on the relationships between mindfulness and vocational identity?

Q9: What is the moderating effect of the internal-external vocational decision-making style on the relationship between mindfulness and career thoughts?

Q10: What is the moderating effect of the internal-external vocational decision-making style on the relationships between mindfulness and vocational identity?
CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

The purpose of this study was to investigate the effect of mindfulness on dysfunctional career thoughts and vocational identity. The effect of vocational decision-making style on dysfunctional career thoughts and vocational identity was also explored, as well as the possible moderating effect of vocational decision-making style on the relationship between mindfulness and dysfunctional career thoughts and between mindfulness and vocational identity. This chapter includes research questions and hypotheses, followed by the research design and variables, and a description of the setting and sample. Next, the instrumentation that was used to collect data will be described, followed by a description of the procedures and data analyses.

Based on the literature reviewed in the previous chapter, it is clear that mindfulness is a useful and viable construct for psychological practice and research. The research questions posited in this study were intended to explore the possible benefit of incorporating mindfulness practices and/or philosophical viewpoints in a career development context. Since this is a relatively uncharted area in psychological research, an exploratory approach is prudent. The present research used a factorial design to determine the effect of mindfulness and decision-making style on dysfunctional career thoughts and vocational identity, as well as the possible moderating effect of decision-making style on the relationship between mindfulness and dysfunctional career thoughts and vocational identity. This decision was arrived at after reviewing prior literature, considering the variables involved, the measurement instruments, and various options for analyzing the data. The moderator and outcome variables were selected using the cognitive information processing (Sampson et al., 2004) content areas as a theoretical framework.
Since the theoretical framework of this study, along with other supporting literature, suggested that a balanced decision-making style is optimal in comparison to predominantly thinking, feeling, internal, or external styles, the hypotheses tested whether curvilinear relationships exist between decision-making style and the dependent variables (dysfunctional career thoughts, vocational identity). In order to accomplish this, decision-making style was separated by thirds into thinking-balanced-feeling and internal-balanced-external, respectively. Mindfulness was also made into a categorical variable using a median split (high mindfulness, low mindfulness) in order to analyze the variance in the different levels. The next section includes the research questions and hypotheses.

3.1 Research Questions and Hypotheses

**Q1:** What is the effect of mindfulness on career thoughts?

**H1:** There will be a significant main effect for mindfulness on career thoughts. Those in the high mindfulness group will have significantly lower dysfunctional career thoughts than those in the low mindfulness group.

**Q2:** What is the effect of mindfulness on vocational identity?

**H2:** There will be a significant main effect for mindfulness and vocational identity. Those in the high mindfulness group will have significantly higher vocational identity than those in the low mindfulness group.

**Q3:** What is the effect of thinking-feeling decision-making style on career thoughts?

**H3:** There will be a significant main effect for thinking/feeling decision-making style on career thoughts. Those in the balanced group will have significantly lower dysfunctional career thoughts than those in the thinking and feeling groups.
Q4: What is the effect of thinking-feeling decision-making style on vocational identity?

H4: There will be a significant main effect for thinking/feeling decision-making style on vocational identity. Those in the balanced group will have significantly higher vocational identity than those in the thinking and feeling groups.

Q5: What is the effect of internal-external decision-making style on career thoughts?

H5: There will be a significant main effect for internal/external decision-making style on career thoughts. Those in the balanced group will have significantly lower dysfunctional career thoughts than those in the internal and external groups.

Q6: What is the effect of internal-external decision-making style on vocational identity?

H6: There will be a significant main effect for internal/external decision-making style on vocational identity. Those in the balanced group will have significantly higher vocational identity than those in the internal and external groups.

Q7: What is the moderating effect of the thinking-feeling vocational decision-making style on the relationships between mindfulness and career thoughts?

H7: There will be no interaction effect between mindfulness and thinking-feeling decision-making style on career thoughts. There will be a differential effect in that those in the balanced group will have fewer dysfunctional career thoughts than those in the thinking and feeling only groups.

Q8: What is the moderating effect of the thinking-feeling vocational decision-making style on the relationships between mindfulness and vocational identity?

H8: There will be no interaction effect between mindfulness and thinking-feeling decision-making style on vocational identity. There will be a differential effect in that
those in the balanced group will have fewer dysfunctional career thoughts than those in
the thinking and feeling only groups.

**Q9:** What is the moderating effect of the internal-external vocational decision-making style on the relationship between mindfulness and career thoughts?

**H9:** There will be no interaction effect between mindfulness and internal-external decision-making style on career thoughts. There will be a differential effect in that those in the balanced group will have higher vocational identity than those in the internal and external only groups.

**Q10:** What is the moderating effect of the internal-external vocational decision-making style on the relationships between mindfulness and vocational identity?

**H10:** There will be no interaction effect between mindfulness and internal-external decision-making style on vocational identity. There will be a differential effect in that those in the balanced group will have higher vocational identity than those in the internal and external only groups.

The following section will describe the measures used.

### 3.2 Instrumentation

#### 3.2.1 Mindfulness

Mindfulness was measured using the Cognitive Affective Mindfulness Scale-Revised (CAMS-R; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). The CAMS-R is a 12-item, 4-point Likert-type measure of mindfulness designed to capture the breadth of the Kabat-Zinn (2003) mindfulness definition (attention, present-moment awareness, attitude of acceptance) with a unitary construct. The CAMS-R was developed specifically for use with populations that have
no formal meditation experience, but may have cultivated mindfulness through other means (life experience, religious practice, psychotherapy, etc.). Examples of items include: “I am preoccupied with the past” and “I am able to accept the thoughts and feelings I have.” The CAMS-R was normed with a sample of 548 ethnically-diverse university students. After a series of item reductions using an SEM procedure, 12 items were retained from an initial pool of 35 items. A confirmatory factor analysis conducted by Feldman et al. (2007) revealed 4 domains relating to the initial model (Attention, Present-Focus, Awareness, and Acceptance), although the internal consistencies of each factor was low due to the small number of items. Additionally, covariances between the factors were medium to large; therefore, the subscales are not to be interpreted separately, but are thought to comprise an overall unitary construct of mindfulness.

The internal consistency of the CAMS-R in the initial sample was found to be .76, indicating moderate reliability. Baer, Smith, Hopkins, Krietemeyer, and Toney (2006) also looked at the internal consistency of the CAMS-R, and reported an alpha of .81 for the CAMS-R in a large student sample. Feldman et al. (2007) also assessed the convergent and discriminant validity of the CAMS-R by examining the relationships between two other existing measures of mindfulness (MAAS and FMI), as well as measures of distress, well-being, emotion regulation and coping; and demographics such as age, gender, and ethnicity. CAMS-R scores were strongly correlated with FMI and MASS scores, providing evidence for convergent validity. Additionally, the CAMS-R was more strongly associated with the FMI than with the MASS; and the FMI is a more comprehensive measure capturing attitudinal factors. This finding suggests that the CAMS-R captures the various factors of mindfulness based on agreed-upon definitions incorporating an attitudinal factor of acceptance. Two other studies (Baer et al., 2006; Haigh et al., 2004) have found strong correlations between the CAMS-R and other measures of mindfulness (KIMS and
MAAS, respectively), adding evidence for its convergent validity. Overall, the CAMS-R appears to be a valid and reliable measure of mindfulness when defined as a unitary construct of nonjudgmental awareness of the present moment with an attitude of acceptance.

3.2.2 Dysfunctional Career Thoughts

Dysfunctional career thoughts were measured using the Career Thoughts Inventory (CTI; Sampson et al., 1996a). The CTI is comprised of 48 items rated on a 4-point Likert-type scale, to which the respondents indicate Strongly Disagree, Disagree, Agree, or Strongly Agree. All items are written in the negative direction in order to measure dysfunctional career thoughts more directly and simplify scoring. The CTI contains three construct scales: Decision-Making Confusion, Commitment Anxiety, and External Conflict; as well as a Total score. The CTI can be administered to adults, college students, and high school students, and is intended to measure dysfunctional career thoughts in career problem solving and decision making. Examples of CTI items include: “I can’t be satisfied unless I can find the perfect occupation for me” and “There are few jobs that have real meaning.”

The CTI was normed using samples of adults, college students, and high school juniors and seniors. Each group was generally representative according to geographic distribution of gender and ethnicity, although adult females were overrepresented. Each self-statement was chosen to be free of gender or ethnic bias (Sampson et al., 1996b); therefore no separate norms were needed for gender or ethnicity. The individual construct scale scores ranged from .94 to .74, with Decision-Making Confusion being the most reliable and External Conflict being the least reliable. Content, construct, and convergent validity for the CTI have also been well-established (Sampson et al., 1996b).
Reliability measures have determined that the alpha level for the total negative thoughts scale is .97. Reliability coefficients for the subscales range from .91 to .74. Sampson et al. (1999) found high levels of test-retest reliability for the total score (.86), indicating consistency in responses after a four-week period.

The CTI was created within the framework of the cognitive information processing (CIP; Sampson et al., 2004) theory of career development, and is therefore believed to have a high level of content validity. The individual items and construct scales are directly linked to CIP theory through the content elements (Sampson et al., 1999). Individual CTI items correspond to eight different content elements or dimensions, which can be used in conjunction with the CTI Workbook as a method of identifying problem areas in career decision making (Sampson et al., 1996b).

The CTI’s construct validity was evidenced through a factor analysis procedure. The three constructs of DMC, CA, and EC were identified in two different samples during the development of the CTI, and were replicated again for adults, college students, and upper level high school students based on normative data (Sampson et al., 1999). The CTI total score is the most highly correlated with the DMC construct for all groups ($r = .89$ to $.94$). The CTI total score is less related to the EC and CA scales, indicating that these two constructs are somewhat less indicative of general dysfunctional thinking than DMC.

Convergent validity for the CTI was measured by comparing the assessment with other similar measures related to career decision making, perceived career decision-making characteristics, and general personality characteristics thought to contribute in the decision-making process. The following measures were used: My Vocational Situation (MVS; Holland, Daiger, & Power, 1980); Career Decision Scale (CDS; Osipow, Carney, Winer, Yanico, &
Koschier, 1987); and, the Career Decision Profile (CDP; Jones, 1988); Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992). Volunteers from each norm group (adults, college students, and high school students) completed the five assessments and demographic information. The four CTI scales, the total score and three construct scales, were correlated in the hypothesized direction for each of the 18 convergent variables; constructs of a positive nature were inversely correlated with negative career thoughts and vice versa. Also notable was the direct correlation between the CTI total score and the constructs of neuroticism and vulnerability (Sampson et al., 1996b).

The CTI has also been compared to other measures to determine discriminant validity. For example, the Career Decision-Making Difficulties Questionnaire (CDDQ; Gati, 2007) was compared to the CTI, and both were compared to a person’s level of decidedness pertaining to career plans. Total scores on the two measures were found to be significantly correlated ($r = .82$), and both the CTI and the CDDQ were found to distinguish between decided and undecided individuals enrolled in a university career development course (Kleiman et al., 2004).

Criterion validity for the CTI examined the extent to which the measure discriminated between individuals seeking career services and those who are not. The CTI was administered to 199 clients and 149 non-clients at two different universities. Analysis of the data demonstrated significant differences between clients and non-clients in both groups (Sampson et al., 1999; Sampson et al, 1996b). Overall the evidence suggests that the CTI is a reliable and valid measure of dysfunctional career thoughts.

3.2.3 Vocational Identity

Vocational identity was measured using the Vocational Identity (VI) scale of the My Vocational Situation (MVS-VI; Holland, Daiger, & Power, 1980), which measures self-
perceptions about one’s interests, talents, goals, and personality. The VI scale is comprised of 18 items measured with a true-false scale, and is an integral component of the My Vocational Situation measure. The total VI score is derived by adding all of the false responses, and higher scores indicate higher levels of vocational identity. Examples of VI items include: “I am not sure of myself in many areas of life,” and “If I had to make an occupational choice right now, I am afraid I would make a bad choice.”

The MVS-VI was normed using a sample of 1,072 participants, which included 281 working adults, 295 university students, and 496 high school students; therefore it is appropriate to administer for high school students, college students, and adults (Holland et al., 1980). Reliability measures determined an alpha coefficient ranging from .86 to .89 for the VI scale, which indicates a high level of internal consistency (Holland et al., 1980). Holland, Johnston, and Asama (1993) conducted an analytical summary of the research (50 studies) using the VI, in order to provide evidence for its validity and reliability. Their review found associations between the VI scale and various positive outcomes, including: rational career decision-making style, desirable career beliefs, vocational commitment, and desirable problem-solving attitudes; and they concluded that the test-retest reliability and construct validity were substantial.

According to Holland et al., (1993), the development of the VI scale initially originated from predominant ideas and existing research related to indecision, counseling theory, and identity formation; and the construct validity is therefore inherent in the items’ origins and development of the scale. Further construct validity was evidenced through analyses conducted by Holland et al., 1980, “to test hypotheses about the relation of vocational identity to age, educational level, vocational aspirations, external ratings, and other criteria” (p. 4).
Leong and Morris (1989) further analyzed the construct validity of the VI scale, and provided support for convergent validity based on its positive relationship with the Career Maturity Inventory scale. Additional support for the construct validity of the VI scale was evidenced by Savickas (1985), who found a positive relationship between the VI scale and achievement of ego identity, as well as between the VI scale and vocational development. Discriminant validity was evidenced by its negative correlation with dysfunctional career thoughts (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996b). Overall, the evidence suggests that the MVS-VI scale is a reliable and valid measure of vocational identity.

3.2.4 Vocational Decision-Making Style

Vocational decision-making style was measured using the Vocational Decision Style Indicator (VDSI; Walsh, 1986). The VDSI measures individual variations in decision-making style using two scales: Thinking-Feeling, and Introvert-Extrovert. The VDSI was constructed based on an explicit integration of theory and research regarding the decision-making process (Harren, 1979), and the characteristic ways in which people relate to others and the environment (Jung, 1923). The initial items were assessed by career counselors to strengthen face validity, and then underwent various empirical analyses which revealed two relatively orthogonal scales (Walsh, 1986). The original version of the VDSI contained 90 items, although Blustein and Phillips (1998) used a 40-item version of the instrument, which was also used for the present study. The VDSI uses a 5-point Likert-type scale to which the respondent indicates always, usually, sometimes, seldom, or never for each item. Higher scores on the T-F scale indicate a more rational approach to decision making, while lower scores on the T-F scale indicate a more intuitive, feeling-oriented approach. Sample items on the T-F scale include “I make decisions in
a systematic way” and “I don’t spend a lot of time gathering information before I make a decision.”

Higher scores on the I-E scale indicate a more active, independent approach to decision making, while lower scores on the I-E scale indicate a more passive, dependent approach. Sample items on the I-E scale include: “I make choices without the help of other people” and “Before I make a decision I ask other people what they think I should do.” Evidence from various studies support the reliability and validity of the VDSI. Walsh (1986) found that the T-F and I-E scales had an alpha reliability coefficients of .797 and .891, respectively; and found high levels of test-retest reliability, supporting the consistent nature of vocational decision-making style over time. Using the 40-item version, Blustein and Phillips (1988) found internal consistency levels of .77 and for the T-F scale and .85 for the I-E scale; and test-retest reliabilities of .89 and .85, respectively. Amir and Gati (2006) also used the 40-item version and confirmed internal consistency of .83 and .84 for the T-F and I-E scales, respectively.

To test the convergent validity of the VDSI, Walsh (1986) used the Myers-Briggs Type Indicator and the Assessment of Career Decision Making. Convergent validity was supported for the T-F scale when compared to the MBTI. Discriminant validity was partially evidenced by an unpredicted relationship between the VDSI T-F scale and the MBTI judgment and perception scales; and was supported for the I-E scales of the VDSI and MBTI. The lack of convergent validity found between the I-E scales on the VDSI and MBTI may be due to the differing nature of the two instruments, as the MBTI measures personality type, and the VDSI is specific to vocational decision-making style.

Convergent and discriminant validity were evidenced for the T-F and I-E scales, as compared to Harren’s (1984) ACDM measure of decision-making styles. The higher an
individual’s thinking score on the T-F scale, the more Rational and less Intuitive his or her score was on the ACDM. For the I-E scale, high extrovert scores on the VDSI corresponded to low Dependent scores on the ACDM. Overall, the evidence suggests that the VDSI is a reliable and valid measure of vocational decision-making style.

3.3 Setting and Sample

Participants were recruited through a subject pool in the Department of Educational Psychology and Learning Systems at a large southeastern university. Individuals from several courses were given the opportunity to participate in this study. Students enrolled in the participating courses consisted of freshman to seniors from a variety of majors.

Prior to data collection, a power analysis was conducted using G*Power 3. The power analysis was calculated for an F test ANOVA design with fixed effects, main effects, and interactions. Since the ANOVAs are 2x3, the numerator \( df \) was set at 2 and the number of groups was set at 6. The following criteria were set for the power analysis: alpha was set at .01 to account for stepwise error given that 4 separate ANOVAs were conducted, effect size was large at .4, and ideal power was set at .8. Based on these criteria, a sample size of 127 participants was estimated as a minimum requirement for adequate power in the study.

The sample for this study consisted of 258 undergraduate university students. The participants consisted of 54 males (20.9%) and 204 females (79.1%). The ethnic composition of the sample consisted of 189 Caucasians (73.3%), 26 Hispanic (10.1%), 23 African Americans (8.9%), 11 Asian (4.3%) and 9 other (3.5%). This sample contained a slightly lower proportion of individuals from minority groups than the university’s overall student population, which is 71% Caucasian, 26% ethnically-diverse (Florida State, 2012). Participants’ age ranged from 17
to 47, with the mean age being 20.3 years.

Table 1
Demographic information for total sample (n=258)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>20.3</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>54</td>
</tr>
<tr>
<td>Female</td>
<td>204</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>189</td>
</tr>
<tr>
<td>Hispanic</td>
<td>26</td>
</tr>
<tr>
<td>African American</td>
<td>23</td>
</tr>
<tr>
<td>Asian</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
</tr>
</tbody>
</table>

3.4 Procedure

Approval by the Internal Review Board was granted, and data were collected through a
data pool in the department of Educational Psychology and Learning Systems (EPLS) at a large
southeastern university. Undergraduate students from several courses were recruited for this
study. Students in these courses were required to complete two research credit hours during the
semester, and participation in this study was worth one credit. Participants were made aware
through informed consent that choosing not to participate in no way affected their grade. If
participants selected this study, they were sent a link to a Qualtrics survey, which was utilized to
administer the instruments online. Qualtrics uses various procedures to assist in survey
administration, and offers several benefits for administering assessments. The order of the
surveys in this study was administered randomly to control for ordering effects.

Prior to beginning the survey, participants provided informed consent by entering their
name and e-mail address, which was also used to assign credit to participants. Then participants
provided demographic information, and completed the four surveys in random order (Cognitive-Affective Mindfulness Scale, Career Thoughts Inventory, Vocational Decision Style Indicator, and Vocational Identity Scale). The identifying information was not attached to participant responses to ensure confidentiality, and all participants who consented received credit, whether or not they completed the surveys. A total of 264 students were given credit for participating in the study. Six of the cases were excluded from the sample due to a proliferation of missing data and incomplete surveys. There were 22 cases of missing data in the sample that was used for this study, and when these occasional items were left blank, average scores were entered.

3.5 Analysis

Data was entered for analysis into a computer program using Predictive Analytical SoftWare (PASW) by SPSS (2009, version 17.0). First, descriptive data was gathered and demographics such as gender, age, and ethnicity were analyzed. Next, correlations were calculated for all variables of interest using Pearson Product Moment Correlation Coefficients to examine the relationships among all variables. The literature, and the study’s theoretical framework (CIP), support the notion that effective decision making is an optimization balance between thinking-feeling and internal-external styles, with respect to the outcome variables. Therefore, the researcher created ordinal scales of the variables for mindfulness and decision-making style to analyze the variance in the different levels. Mindfulness was categorized into high/low using a median split. The thinking-feeling decision-making style was categorized into three levels, thinking/balanced/feeling by dividing them into equal thirds. Similarly, the internal-external decision-making style was categorized into three levels, internal/balanced/external,
using the same approach. The analysis included 4 separate 2 x 3 ANOVAs, 2 for each outcome variable.

Dichotomization of continuous variables is a commonly-used practice in the research literature. A study conducted by MacCallum, Zhang, Preacher, and Rucker (2002) found that 11.5% of articles in three leading journals known for high statistical and methodological standards contained analyses in which at least one continuous variable was artificially dichotomized. Some methodologists have argued that separating continuous variables into categories may result in a loss of information, reduce power, and create falsely significant results (Streiner, 2002). In the MacCallum et al. (2002) study, only 20% of the studies with dichotomized variables included any justification. Thus, dichotomization seems to be most often used without any explicit justification. Despite the potential problems, dichotomization of variables is justifiable and appropriate given certain circumstances (DeCoster, Iselin, & Gallucci, 2009). Such justifications include representing underlying categories in a continuous variable, examining extreme groups, and to investigate how a measure will perform in the field. Non-linearity of independent variables and highly-skewed data are other justifications for dichotomization offered by Steiner (2002).

Based on the literature, decision-making style appears to have underlying categories (thinking, feeling, internal, external) (Harren, 1979; Walsh, 1986). Additionally, a balanced decision-making style is believed to be more effective than relying on one style alone (Rubinton, 1980; Phillips et al., 1984; Kreishok et al., 2009; Hartung & Blustein, 2002), suggesting a curvilinear relationship in decision-making style. Given the believed categorical and curvilinear nature of decision-making style, separating into categories was justifiable. One of the purposes of this study was to determine whether a balanced decision-making style was in fact optimal
compared to extremes of thinking, feeling, internal, and external styles. Therefore, this research question necessitates the use of trichotimization.

There are several advantages to using a factorial design. With a two-factor design, we can study the main effect of each independent variable separately, as well as how the independent variables interact to affect the outcome variable. In the real world, it is rare for one variable to be unaffected by other variables, and it may be more accurate and informative to consider interactions of multiple variables as opposed to each variable separately. This allows one to test whether the effects of one independent variable differ across the levels of the second independent variable.

There are several assumptions underlying the use of a two-way ANOVA design; including normality, equal variance, and independence, which can be tested using various procedures. Normality can be tested using the Shapiro-Wilkes test, homogeneity of variance can be tested using Levine’s test, and independence can be tested by examining the correlations between variables (Mertler & Vanatta, 2005). These assumptions must be met because they affect the proper use and interpretations of results from a given ANOVA procedure.

In a two-way ANOVA analysis, two main effects are investigated, one for each independent variable. For each main effect, we are studying whether means associated with each level are further apart from each other than would be expected by chance alone, which is indicated if the probability factor is less than the chosen alpha level. If so, the main effect for that variable is considered significant. When a main effect is significant, the eta squared ($\eta^2$) can be used to interpret the effect size, or amount of variance explained in the dependent variable by a predictor while controlling for other predictors (Mertler & Vanatta, 2005). Cohen (1988)
suggests effect sizes for various indexes, including a conversion table for eta squared ($\eta^2$) where 0.01 constitutes a small effect, 0.06 a medium effect and 0.14 a large effect.

Four plots were created, one for each 2X3 ANOVA in order to provide visual representations of the relationships. It was predicted that there would be main effects for mindfulness and decision-making style for both career thoughts and vocational identity. Furthermore, it was anticipated that curvilinear relationships with no interactions would be found for each ANOVA, supporting the hypotheses that there will be no significant moderating effect, but that a differential effect showing that a balanced approach is optimal in terms of the outcome variables. It was hypothesized that the main effect for mindfulness would show that those high in mindfulness would have lower CTI total scores and higher VI scores than those low in mindfulness, for all types of decision-makers. The main effect for thinking-feeling and internal-external decision making was hypothesized to show that those with a balanced approach would have lower CTI total scores and higher VI scores than those with either the thinking or feeling and internal or external decision making. No interaction between mindfulness and decision-making style was anticipated, suggesting that there was no moderating effect. Finally, post-hoc tests were conducted to further analyze main effects.
CHAPTER FOUR

RESULTS

Mindfulness might be associated with dysfunctional career thoughts and vocational identity, but such a relationship may differ based on decision-making style. In order to test the effect of mindfulness on dysfunctional career thoughts and vocational identity by decision-making style, four two-way ANOVAs were conducted to compare the means between high and low mindfulness across decision-making styles for the dependent variables (dysfunctional career thoughts and vocational identity).

The first section of this chapter presents results from Pearson Product-Moment Correlation Coefficients with the variables in their continuous form, in order to examine the relationships among all variables. The subsequent sections summarize results from the tests of statistical assumptions, the ANOVA procedures, and post hoc analyses, as well as secondary analyses.
4.1 Data Analysis

Table 2
*Means, Standard Deviations, and Correlations for Variables*

<table>
<thead>
<tr>
<th></th>
<th>Mindfulness</th>
<th>TF</th>
<th>IE</th>
<th>CTI Total</th>
<th>DMC</th>
<th>CA</th>
<th>EC</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mindfulness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TF</td>
<td>.326*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IE</td>
<td>.311*</td>
<td>.145</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTI Total</td>
<td>-.497*</td>
<td>-.319*</td>
<td>-.368*</td>
<td></td>
<td>.923*</td>
<td>.729*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DMC</td>
<td>-.431*</td>
<td>-.297*</td>
<td>-.276*</td>
<td>.937*</td>
<td>.750*</td>
<td>.602*</td>
<td>.605*</td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>-.423*</td>
<td>-.215*</td>
<td>-.348*</td>
<td>.881*</td>
<td>.729*</td>
<td>.602*</td>
<td>.605*</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>-.364*</td>
<td>-.294*</td>
<td>-.431*</td>
<td>.750*</td>
<td>.602*</td>
<td>.605*</td>
<td>.482*</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>.402*</td>
<td>.250*</td>
<td>.343*</td>
<td>-.696*</td>
<td>-.654*</td>
<td>-.697*</td>
<td>-.482*</td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>32.10</td>
<td>66.99</td>
<td>57.04</td>
<td>47.38</td>
<td>10.31</td>
<td>12.27</td>
<td>5.33</td>
<td>11.13</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>5.29</td>
<td>8.11</td>
<td>10.90</td>
<td>22.79</td>
<td>7.71</td>
<td>5.77</td>
<td>3.01</td>
<td>4.89</td>
</tr>
</tbody>
</table>

Note. TF = Thinking-Feeling Decision-Making Style; IE = Internal-External Decision-Making Style; CTI Total = Career Thoughts Inventory Total; DMC = Decision-Making Confusion; CA = Commitment Anxiety; EC = External Conflict; VI = Vocational Identity. *p < .01.

To explore the relationships among mindfulness, decision-making style, dysfunctional career thoughts, and vocational identity, Pearson Product-Moment Correlations were computed. As can be seen in Table 2, significant relationships (p < .01) were found between mindfulness and all other variables of interest, including Thinking-Feeling Decision-Making Style (r = .326), Internal-External Decision-Making Style (r = .311), CTI total score (r = -.497), and Vocational Identity (r = .402). Mindfulness was also significantly related to the CTI subscale scores (Decision-Making Confusion, r = -.431; Commitment Anxiety, r = -.423; External Conflict, r = -.364). All of the aforementioned relationships were medium in size according to Cohen’s (1988) criteria, indicating that mindfulness is associated with fewer dysfunctional career thoughts, external and thinking-based decision-making style, and higher vocational identity. Thinking-Feeling Decision-Making style had a significant, medium-size relationship with CTI total score (r = -.319), suggesting an association between thinking-based decision making and fewer
dysfunctional career thoughts; and small-sized significant relationships with the CTI subscales (Decision-Making Confusion, $r = -.297$; Commitment Anxiety, $r = -.215$; External Conflict, $r = -.294$) and Vocational Identity ($r = .250$). Internal-External Decision-Making style showed medium-sized significant relationships with the CTI total score ($r = -.368$), Commitment Anxiety ($r = -.276$), External Conflict ($r = -.431$), and Vocational Identity ($r = .343$), and a small significant relationship with Decision-Making Confusion ($r = -.276$). These relationships indicate that an external decision-making style is related to fewer dysfunctional career thoughts and higher vocational identity levels. Consistent with previous research, the CTI total was strongly related to vocational identity ($r = -.696$), indicating that higher vocational identity is related to fewer dysfunctional career thoughts.

### 4.2 Mindfulness, Thinking-Feeling Decision-Making Style, and Career Thoughts

A two-way ANOVA procedure was conducted to evaluate the effects of mindfulness and thinking-feeling decision-making style on career thoughts. The independent variables are mindfulness (high, low) and decision-making style (thinking, balanced, feeling). Table 3 shows the condition means, standard deviations and sample sizes. Table 4 presents the complete ANOVA source table. In order to examine normality, standardized skewness and the Shapiro-Wilks test were used, which indicated the data were statistically normal. The test for homogeneity of variance was not significant, $Levene$ $F(5, 252) = .461, p = .805$, indicating that this assumption underlying the application of the two-way ANOVA was met. Results revealed that the correlation ($r = .326$) between the two factors was statistically significant, however the correlation did not exceed the .80 threshold, therefore the requirement for the independence assumption was met. An alpha level of .01 was used in order to account for family-wise error.
The results for the two-way ANOVA revealed a significant main effect for mindfulness, \( F(1, 252) = 37.61, p < .001, \eta^2 = .130 \) (See Table 4), indicating that a significant difference exists in dysfunctional career thoughts between those with high mindfulness and those with low mindfulness. The effect size estimate revealed that mindfulness contributed to 13.0% of the variance in dysfunctional career thoughts, which is a medium effect size given Cohen’s (1988) suggestions. A significant main effect was also found for thinking-feeling decision-making style, \( F(2, 252) = 6.30, p = .002, \eta^2 = .048 \) (See Table 4), indicating that a significant difference exists in dysfunctional career thoughts among those with thinking, balanced, and feeling decision-making style. There was a small effect size, indicating that thinking-feeling decision-making style contributed to 4.8% of the variance in dysfunctional career thoughts.

The interaction between mindfulness and thinking-feeling decision-making style was not significant, \( F(2, 252) = .686, p = .504, \eta^2 = .005 \) (see Table 4, Figure 3). The lack of a significant interaction indicates no moderating effect of thinking-feeling decision-making style on the effect of mindfulness on dysfunctional career thoughts. Post hoc comparisons, using a Tukey HSD procedure, were performed on the three levels of decision-making style to determine which pairs were significantly different from one another. There was a statistically significant difference \( (p < .01) \) between the thinking and feeling decision-making styles. This finding indicates that those with a thinking-oriented decision-making style endorsed significantly fewer dysfunctional career thoughts than those with a feeling-oriented style among both the high and low mindfulness groups. Although the mean for the balanced decision-making style was slightly larger than the mean for the Feeling decision-making style, the difference was not large enough to produce a statistical effect (See Table 5).
Table 3
Descriptive Statistics for CTI Total Scores by Mindfulness and Thinking-Feeling Decision-Making Style

<table>
<thead>
<tr>
<th>Decision-Making Style</th>
<th>Thinking</th>
<th>Balanced</th>
<th>Feeling</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Mindfulness</td>
<td>32.5</td>
<td>41.0</td>
<td>43.4</td>
<td>38.2</td>
</tr>
<tr>
<td></td>
<td>20.7</td>
<td>21.1</td>
<td>21.5</td>
<td>21.4</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>41</td>
<td>34</td>
<td>126</td>
</tr>
<tr>
<td>Low Mindfulness</td>
<td>50.0</td>
<td>52.9</td>
<td>62.2</td>
<td>56.1</td>
</tr>
<tr>
<td></td>
<td>18.8</td>
<td>19.6</td>
<td>21.0</td>
<td>20.6</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>47</td>
<td>55</td>
<td>132</td>
</tr>
<tr>
<td>Total</td>
<td>39.0</td>
<td>47.4</td>
<td>55.0</td>
<td>47.4</td>
</tr>
<tr>
<td></td>
<td>21.6</td>
<td>21.1</td>
<td>23.0</td>
<td>22.8</td>
</tr>
<tr>
<td></td>
<td>81</td>
<td>88</td>
<td>89</td>
<td>258</td>
</tr>
</tbody>
</table>

Figure 3. Mean CTI Total scores for High Mindfulness and Low Mindfulness among Thinking, Balanced, and Feeling Decision-Making Styles

Table 4
Source Table for the Two-Way Analysis of Variance for Career Thoughts as a Function of Mindfulness and Thinking-Feeling Decision-Making Style

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>15856.2</td>
<td>1</td>
<td>15856.2</td>
<td>37.6</td>
<td>&lt;.001</td>
<td>.130</td>
</tr>
<tr>
<td>Thinking-Felling</td>
<td>5136.7</td>
<td>2</td>
<td>2658.4</td>
<td>6.3</td>
<td>.002</td>
<td>.048</td>
</tr>
<tr>
<td>Interaction (MXTF)</td>
<td>578.7</td>
<td>2</td>
<td>289.4</td>
<td>0.7</td>
<td>.504</td>
<td>.005</td>
</tr>
<tr>
<td>Error</td>
<td>106241.2</td>
<td>252</td>
<td>421.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>133424.5</td>
<td>258</td>
<td></td>
<td></td>
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</tbody>
</table>
4.3 Mindfulness, Thinking-Feeling Decision-Making Style, and Vocational Identity

The effects of mindfulness and thinking-feeling decision-making style on vocational identity were evaluated by a two-way ANOVA procedure, with the independent variables being mindfulness (high, low) and decision-making style (thinking, balanced, feeling). Table 6 shows the condition means, standard deviations and sample sizes. Table 7 presents the complete ANOVA source table. In order to examine normality, standardized skewness and the Shapiro-Wilks test were used, which indicated the data were statistically normal. The test for homogeneity of variance was not significant, $Levene F(5, 252) = 2.00, p = .079$, indicating that this assumption underlying the application of the two-way ANOVA was met. Results revealed that the correlation ($r = .326$) between the two factors was statistically significant, however the correlation did not exceed the .80 threshold, therefore the requirement for the independence assumption was met. An alpha level of .01 was used in order to account for family-wise error.

The results for the two-way ANOVA revealed a significant main effect for mindfulness, $F(1, 252) = 20.93, p < .001, \eta^2 = .136$ (See Table 7), indicating that a significant difference exists in dysfunctional career thoughts between those with high mindfulness and those with low mindfulness. The effect size estimate revealed that mindfulness contributed to 13.6% of the variance in dysfunctional career thoughts, which is a medium effect size given Cohen’s (1988)
suggestions. A significant main effect was also found for thinking-feeling decision-making style, $F(2, 252) = 4.8, p = .009, \eta^2 = .053$ (See Table 7), indicating that a significant difference exists in vocational identity among those with thinking, balanced, and feeling decision-making style. There was a small effect size, indicating that thinking-feeling decision-making style contributed to 5.3% of the variance in vocational identity.

The interaction between mindfulness and thinking-feeling decision-making style was not significant, $F(2, 252) = .636, p = .530, \eta^2 = .077$ (see Table 7, Figure 4). The lack of a significant interaction indicates no moderating effect of thinking-feeling decision-making style on the effect of mindfulness on vocational identity. Post hoc comparisons, using a Tukey HSD procedure, were performed on the three levels of decision-making style to determine which pairs were significantly different from one another. There was a statistically significant difference ($p < .01$) between the thinking and feeling decision-making styles. This finding indicates that those with a thinking-oriented decision-making style had higher levels of vocational identity than those with a feeling-oriented style among both the high and low mindfulness groups. Although the mean for the balanced decision-making style was larger than the mean for the feeling decision-making style, the difference was not large enough to produce a statistical effect (.010) (See Table 8).

Table 6

<table>
<thead>
<tr>
<th>Decision-Making Style</th>
<th>Thinking</th>
<th>Balanced</th>
<th>Feeling</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$n$</td>
<td>$M$</td>
</tr>
<tr>
<td>High Mindfulness</td>
<td>13.5</td>
<td>4.5</td>
<td>51</td>
<td>12.5</td>
</tr>
<tr>
<td>Low Mindfulness</td>
<td>10.6</td>
<td>3.92</td>
<td>30</td>
<td>10.7</td>
</tr>
<tr>
<td>Total</td>
<td>12.4</td>
<td>4.5</td>
<td>81</td>
<td>11.6</td>
</tr>
</tbody>
</table>
Table 7

Source Table for the Two-Way Analysis of Variance for Vocational Identity as a Function of Mindfulness and Thinking-Feeling Decision-Making Style

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>440.7</td>
<td>1</td>
<td>440.7</td>
<td>20.93</td>
<td>&lt;.001</td>
<td>.136</td>
</tr>
<tr>
<td>Thinking-Feeling</td>
<td>201.8</td>
<td>2</td>
<td>100.9</td>
<td>4.8</td>
<td>.009</td>
<td>.053</td>
</tr>
<tr>
<td>Interaction (MXTF)</td>
<td>26.8</td>
<td>2</td>
<td>13.4</td>
<td>.636</td>
<td>.530</td>
<td>.077</td>
</tr>
<tr>
<td>Error</td>
<td>5305.9</td>
<td>252</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>38089.0</td>
<td>258</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8

Tukey HSD Comparison for VI Scores across Levels of Thinking-Feeling Decision-Making Style

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>MD</th>
<th>SE</th>
<th>p</th>
<th>95% confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
<td>Upper Bound</td>
</tr>
<tr>
<td>Feeling Balance</td>
<td>-2.03*</td>
<td>.69</td>
<td>.010</td>
<td>-4.06</td>
</tr>
<tr>
<td>Feeling Thinking</td>
<td>-2.86*</td>
<td>.70</td>
<td>&lt;.001</td>
<td>-4.92</td>
</tr>
<tr>
<td>Balance Thinking</td>
<td>-.87</td>
<td>.71</td>
<td>.472</td>
<td>-2.90</td>
</tr>
</tbody>
</table>

*p < .01
4.4 Mindfulness, Internal-External Decision-Making Style, and Career Thoughts

A two-way ANOVA procedure was also conducted to evaluate the effects of mindfulness and internal-external decision-making style on career thoughts. The independent variables are mindfulness (high, low) and decision-making style (internal, balanced, external). Table 9 shows the condition means, standard deviations and sample sizes. Table 10 presents the complete ANOVA source table. In order to examine normality, standardized skewness and the Shapiro-Wilks test were used, which indicated the data were statistically normal. The test for homogeneity of variance was not significant, $Levene F(5, 252) = .776, p = .568$, indicating that this assumption underlying the application of the two-way ANOVA was met. Results revealed that the correlation ($r = .311$) between the two factors was statistically significant, however the correlation did not exceed the .80 threshold, therefore the requirement for the independence assumption was met. An alpha level of .01 was used in order to account for family-wise error.

The results for the two-way ANOVA revealed a significant main effect for mindfulness, $F(1, 252) = 35.35, p < .001, \eta^2 = .123$ (See Table 10), indicating that a significant difference exists in dysfunctional career thoughts between those with high mindfulness and those with low mindfulness. The effect size estimate revealed that mindfulness contributed to 12.3% of the variance in dysfunctional career thoughts, which is a medium effect size given Cohen’s (1988) suggestions. A significant main effect was also found for thinking-feeling decision-making style, $F(2, 252) = 17.36, p = < .001, \eta^2 = .121$ (See Table 10), indicating that a significant difference exists in dysfunctional career thoughts among those with internal, balanced, and external decision-making style. There was a medium effect size, indicating that internal-external decision-making style contributed to 12.1% of the variance in dysfunctional career thoughts.
The interaction between mindfulness and thinking-feeling decision-making style was not significant, $F(2, 252) = .623, p = .537, \eta^2 = .005$ (see Table 10, Figure 5). The lack of a significant interaction indicates no moderating effect of internal-external decision-making style on the effect of mindfulness on dysfunctional career thoughts. Post hoc comparisons, using a Tukey HSD procedure, were performed on the three levels of decision-making style to determine which pairs were significantly different from one another. There was a statistically significant difference ($p < .01$) between the internal and external decision-making styles. This finding indicates that those with an internal-oriented decision-making style endorsed significantly fewer dysfunctional career thoughts than those with an external-oriented style among both the high and low mindfulness groups. There was also a statistically significant difference ($< .01$) between balanced and external decision-making styles, indicating that those with an external decision-making style endorsed more dysfunctional career thoughts than those with a balance between internal and external decision-making style (See Table 11).

Table 9
Descriptive Statistics for CTI Total Scores by Mindfulness and Internal-External Decision-Making Style

<table>
<thead>
<tr>
<th>Decision-Making Style</th>
<th>Internal</th>
<th>Balanced</th>
<th>External</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$n$</td>
<td>$M$</td>
</tr>
<tr>
<td>High Mindfulness</td>
<td>28.6</td>
<td>18.3</td>
<td>55</td>
<td>42.3</td>
</tr>
<tr>
<td>Low Mindfulness</td>
<td>47.1</td>
<td>20.2</td>
<td>35</td>
<td>57.0</td>
</tr>
<tr>
<td>Total</td>
<td>35.8</td>
<td>21.0</td>
<td>90</td>
<td>50.2</td>
</tr>
</tbody>
</table>

81
Figure 5. Mean CTI Total scores for High Mindfulness and Low Mindfulness among Internal, Balanced, and External Decision-Making Styles

Table 10
Source Table for the Two-Way Analysis of Variance for Career Thoughts as a Function of Mindfulness and Internal-External Decision-Making Style

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>13804.4</td>
<td>1</td>
<td>13804.4</td>
<td>35.35</td>
<td>&lt;.001</td>
<td>.123</td>
</tr>
<tr>
<td>Internal-External Interaction (MXIE)</td>
<td>13571.9</td>
<td>2</td>
<td>6785.9</td>
<td>17.36</td>
<td>&lt;.001</td>
<td>.121</td>
</tr>
<tr>
<td>Interaction Error MXIE</td>
<td>486.4</td>
<td>2</td>
<td>243.2</td>
<td>.623</td>
<td>.537</td>
<td>.005</td>
</tr>
<tr>
<td>Error</td>
<td>598421.5</td>
<td>252</td>
<td>390.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>712501.0</td>
<td>258</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 11
Tukey HSD Comparison for CTI Total Scores across Levels of Internal-External Decision-Making Style

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>MD</th>
<th>SE</th>
<th>p</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Balance</td>
<td>6.89</td>
<td>3.05</td>
<td>.064</td>
<td>-2.07</td>
<td>15.87</td>
</tr>
<tr>
<td>Internal External</td>
<td>21.31*</td>
<td>3.03</td>
<td>&lt; .001</td>
<td>12.41</td>
<td>30.21</td>
</tr>
<tr>
<td>Balanced External</td>
<td>14.42*</td>
<td>2.97</td>
<td>&lt; .001</td>
<td>5.69</td>
<td>23.16</td>
</tr>
</tbody>
</table>

*p< .01
4.5 Mindfulness, Internal-External Decision-Making Style, and Vocational Identity

A two-way (2x3) ANOVA procedure was conducted to evaluate the effects of mindfulness and internal-external decision-making style on vocational identity. The independent variables are mindfulness (high, low) and decision-making style (internal, balanced, external). Table 12 shows the condition means, standard deviations and sample sizes. Table 13 presents the complete ANOVA source table. The test for homogeneity of variance was significant, Levene $F(5, 252) = 4.346, p = .001$, indicating that this assumption underlying the application of the two-way ANOVA was violated, which suggests that there may be unidentified sources of variability that may confound interpretation of the results. The first option in the case of a violated assumption is to avoid null hypothesis testing entirely, choosing to remain entirely descriptive during analysis. Another option to cope with heterogeneous data is to use a transformation in order to make the data more homogenous to suitably meet the assumption of the analysis. However, this practice is only warranted if the transformed data is more meaningful than the original data (Bryk & Roddenbush, 1988). Another option is to use nonparametric tests, such as the Kruskal-Wallis, which examines median differences instead of mean differences, although such a test would not be appropriate given the research questions of the study. The final option is to run the ANOVA as planned, and to interpret the results with caution given the violated assumption, which is acceptable provided the other assumptions have been met (normality and independence). Results revealed that the correlation ($r = .311$) between the two factors was statistically significant, however the correlation did not exceed the .80 threshold, therefore the requirement for the independence assumption was met. In order to examine normality, standardized skewness and the Shapiro-Wilks test were used, which indicated the data were statistically normal. Therefore, the ANOVA will be analyzed without the use of a data-
transformation procedure. An alpha level of .01 was used in order to account for family-wise error.

The results for the two-way ANOVA revealed a significant main effect for mindfulness, \( F(1, 252) = 17.74, p < .001, \eta^2 = .66 \) (See Table 13), indicating that a significant difference exists in vocational identity between those with high mindfulness and those with low mindfulness. The effect size estimate revealed that mindfulness contributed to 6.6% of the variance in dysfunctional career thoughts, which is a small effect size given Cohen’s (1988) suggestions. A significant main effect was also found for thinking-feeling decision-making style, \( F(2, 252) = 20.84, p = < .001, \eta^2 = .142 \) (See Table 13), indicating that a significant difference exists in vocational identity among those with internal, balanced, and external decision-making style. There was a medium effect size, indicating that thinking-feeling decision-making style contributed to 14.2% of the variance in dysfunctional career thoughts.

The interaction between mindfulness and thinking-feeling decision-making style was not significant, \( F(2, 252) = .896 p = .504, \eta^2 = .001 \) (see Table 13, Figure 6). The lack of a significant interaction indicates no moderating effect of thinking-feeling decision-making style on the effect of mindfulness on dysfunctional career thoughts. Post hoc comparisons, using a Tukey HSD procedure, were performed on the three levels of decision-making style to determine which pairs were significantly different from one another. There was a statistically significant difference \( (p < .01) \) between the internal and external decision-making styles. This finding indicates that those with an internal-oriented decision-making style reported significantly higher vocational identity than those with an external-oriented style among both the high and low mindfulness groups. There was also a statistically significant difference between the internal and balanced groups, indicating that those with an internal-oriented decision-making style reported
higher vocational identity than those with a balance between internal and external decision-making style (See Table 14).

Table 12
Descriptive Statistics for VI Scores by Mindfulness and Internal-External Decision-Making Style

<table>
<thead>
<tr>
<th>Decision-Making Style</th>
<th>Internal</th>
<th>Balanced</th>
<th>External</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>High Mindfulness</td>
<td>14.5</td>
<td>3.7</td>
<td>55</td>
<td>11.6</td>
</tr>
<tr>
<td>Low Mindfulness</td>
<td>12.6</td>
<td>3.6</td>
<td>35</td>
<td>9.2</td>
</tr>
<tr>
<td>Total</td>
<td>13.8</td>
<td>3.8</td>
<td>90</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Figure 6. Mean VI scores for High Mindfulness and Low Mindfulness among Internal, Balanced, and External Decision-Making Styles
Table 13
Source Table for the Two-Way Analysis of Variance for Career Thoughts as a Function of Mindfulness and Internal-External Decision-Making Style

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>335.4</td>
<td>1</td>
<td>335.4</td>
<td>17.74</td>
<td>&lt;.001</td>
<td>.066</td>
</tr>
<tr>
<td>Internal-External</td>
<td>788.2</td>
<td>2</td>
<td>394.1</td>
<td>20.84</td>
<td>&lt;.001</td>
<td>.142</td>
</tr>
<tr>
<td>Interaction (MXIE)</td>
<td>4.2</td>
<td>2</td>
<td>2.1</td>
<td>.110</td>
<td>.896</td>
<td>.001</td>
</tr>
<tr>
<td>Error</td>
<td>4765.3</td>
<td>252</td>
<td>18.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6140.8</td>
<td>258</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14
Tukey HSD Comparison for VI Scores across Levels of Internal-External Decision-Making Style

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>MD</th>
<th>SE</th>
<th>p</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Internal Balance</td>
<td>3.51*</td>
<td>0.65</td>
<td>&lt;.001</td>
<td>1.59</td>
</tr>
<tr>
<td>Internal External</td>
<td>4.70*</td>
<td>0.67</td>
<td>&lt;.001</td>
<td>2.74</td>
</tr>
<tr>
<td>Balance External</td>
<td>1.19</td>
<td>0.67</td>
<td>.181</td>
<td>-0.78</td>
</tr>
</tbody>
</table>

*p < .01

4.6 Secondary Analyses

Standard multiple regression analysis was used to test if mindfulness and decision-making style predicted participant’s endorsements of dysfunctional career thoughts and vocational identity (see Tables 15 and 16). The data were screened to determine if the assumptions for multiple regression analysis were met. Each of the variables were found to be approximately normal, linear, and homoscedastic, meeting the assumptions for regression analysis. The regression that included mindfulness, thinking-feeling decision-making style, and
internal-external decision-making style as predictors of dysfunctional career thoughts was statistically significant, \( R^2 = .322, F(3, 254) = 40.20, p = < .001 \). The three predictors together accounted for 32.2% of the variance in dysfunctional career thoughts. Mindfulness significantly predicted dysfunctional career thoughts (\( \beta = -.373, p = < .001 \)), as did thinking-feeling decision-making style (\( \beta = -.165, p = 0.003 \)) and internal-external decision-making style (\( \beta = -.228, p = < .001 \)) (See Table 15).

The multiple regression that included mindfulness, thinking-feeling decision-making style, and internal-external decision-making style as predictors of vocational identity was also statistically significant, \( R^2 = .228, F(3, 254) = 24.96, p = < .001 \). The three predictors together accounted for 22.8% of the variance in vocational identity. Mindfulness significantly predicted level of vocational identity (\( \beta = .290, p = < .001 \)), as did internal-external decision-making style (\( \beta = .235, < .001 \)). Thinking-feeling decision-making style was not a statistically significant predictor of vocational identity (\( \beta = .122, p = .038 \)) (See Table 16).

Table 15
Regression Analysis for Variables Predicting Dysfunctional Career Thoughts

<table>
<thead>
<tr>
<th>Variable</th>
<th>( B )</th>
<th>( SE )</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>-1.604</td>
<td>.245</td>
<td>-.373</td>
<td>-6.545</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>T-F DMS</td>
<td>-.463</td>
<td>.154</td>
<td>-.165</td>
<td>-3.014</td>
<td>.003</td>
</tr>
<tr>
<td>I-E DMS</td>
<td>-.476</td>
<td>.114</td>
<td>-.228</td>
<td>-4.185</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

\[ R^2 \]
\[ .322 \]
\[ R^2 \] Adjusted  
\[ .314 \]
\[ F \]
\[ 40.20 \]

Note. T-F DMS = Thinking-Feeling Decision-Making Style; I-E DMS = Internal-External Decision-Making Style
Table 16
Regression Analysis for Variables Predicting Vocational Identity

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindfulness</td>
<td>.267</td>
<td>.056</td>
<td>.290</td>
<td>4.762</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>T-F DMS</td>
<td>.073</td>
<td>.035</td>
<td>.122</td>
<td>2.081</td>
<td>.038</td>
</tr>
<tr>
<td>I-E DMS</td>
<td>.106</td>
<td>.026</td>
<td>.235</td>
<td>4.052</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

$R^2 = .228$
$R^2\text{ Adjusted} = .219$
$F = 24.96$

Note. T-F DMS = Thinking-Feeling Decision-Making Style; I-E DMS = Internal-External Decision-Making Style
CHAPTER FIVE

DISCUSSION

This chapter presents a summary of the results, followed by a discussion of the results in the context of the research questions and hypotheses. Next, limitations of the present study are addressed. Finally, directions for future research and implications for practice are offered.

5.1 Summary of Results

The purpose of this study was to examine the relationships among mindfulness, decision-making style, dysfunctional career thoughts, and vocational identity. Specifically, this study intended to evaluate the relationships between mindfulness and dysfunctional career thoughts, and between mindfulness and vocational identity; and whether those relationships would be moderated by decision-making style. It was hypothesized that strong relationships would be present between mindfulness and the outcome variables (dysfunctional career thoughts and vocational identity). It was also hypothesized that there would be no moderating effect of decision-making style on the relationships between mindfulness and the outcome variables, showing that mindfulness has a strong effect on dysfunctional career thoughts and vocational identity regardless of decision-making style. It was further hypothesized that curvilinear relationships would be present, depicting a balanced decision-making style as optimal to predominantly thinking, feeling, internal, or external styles.

To examine the relationships between the variables, correlation coefficients were calculated, which indicated strong to moderate relationships between all variables of interest. In order to test the posited hypotheses, mindfulness and decision-making style were converted to categorical variables, and a series of four ANOVA procedures were conducted to determine
whether curvilinear relationships existed in relation to the outcome variables, as well as to determine whether an interaction existed between mindfulness and decision-making style. The findings of the ANOVA procedures revealed strong main effects, showing that mindfulness, thinking-oriented decision making, and internal-oriented decision-making were strongly associated with fewer dysfunctional career thoughts, and higher levels of vocational identity. Since thinking and internal decision-making styles were found to be more optimal in relation to the outcome variables than a balanced decision-making style, the hypotheses positing curvilinear relationships were not supported. Since the relationships of mindfulness and decision-making style to dysfunctional career thoughts and vocational identity were found to be linear, secondary analyses were conducted to further examine predictive power, using mindfulness and decision-making style as continuous variables; which consisted of two multiple regression procedures (one for each dependent variable). Both of the multiple regression analyses were statistically significant \( p < .001 \), and the findings revealed that mindfulness and decision-making style accounted for 32.2% of the variance in dysfunctional career thoughts and 28.8% of the variance in vocational identity. A discussion of results is provided within the parameters of the research questions and hypotheses.

5.2 Discussion of Results

**Question 1.** What is the effect of mindfulness on career thoughts?

It was hypothesized that higher levels of mindfulness would be strongly associated with lower levels of dysfunctional career thoughts, which was supported by the finding of a significant correlation \( r = -.497, p < .001 \). In relation to the ANOVA procedure, a significant main effect was hypothesized for mindfulness on dysfunctional career thoughts, which was
supported showing that those in the high mindfulness group had significantly lower
dysfunctional career thoughts than those in the low mindfulness group. The regression analysis
provided additional information, revealing a strong effect for mindfulness on dysfunctional
career thoughts ($\beta = -.373$), accounting for 37.3% of the variance. Based on the analyses
conducted in this study, it is apparent that level of mindfulness has a strong effect on
dysfunctional career thoughts. Specifically, those higher in mindfulness were found to endorse
significantly fewer dysfunctional career thoughts. These findings indicate that greater
mindfulness leads to less confusion, anxiety, and conflict; and therefore less cognitive
interference in career problem solving and decision making.

Since mindfulness has been referred to as a metacognition (Teasdale et al, 2002; Brown
& Ryan, 2003), which allows one to witness and disengage from negative ruminative thinking, it
is unsurprising that high mindfulness was found to lead to fewer dysfunctional career thoughts.
From a CIP theoretical perspective (Sampson et al., 2004), mindfulness as a metacognition likely
allows one to maintain self-awareness, govern self-talk, monitor and control where one is in the
career decision-making process.

**Question 2.** What is the effect of mindfulness on vocational identity?

It was hypothesized that higher levels of mindfulness would be strongly associated with
higher levels of vocational identity, which was supported by the finding of a significant
correlation ($r = .402, p < .001$). The ANOVA procedure revealed that those in the high
mindfulness group had significantly higher vocational identity than those in the low mindfulness
group. The regression analysis provided additional information, revealing a medium effect for
mindfulness on vocational identity ($\beta = .290$), accounting for 29.0% of the variance. Based on
these results, it appears that level of mindfulness has an effect on a person’s vocational identity
level. Specifically, those higher in mindfulness were found to have significantly higher levels of vocational identity, suggesting that greater mindfulness supports a clearer and more stable picture of one’s goals, interests, and talents.

Making effective career decisions requires insight and a stable sense of self. Super, Savickas, and Super (1996) suggested that establishing a stable vocational identity serves as the basis for making occupational choices. Individuals will continue to clarify their values, interests, and skills as they progress through life, and learning to reflect upon and reevaluate self knowledge regularly leads to more successful decisions (Sampson et al., 2004). Brown, Ryan, and Creswell (2007a) suggested that mindfulness likely fosters a clearer recognition of personal identity; and Verni (2001) suggested that mindfulness improves the navigation of identity formation. Other authors (Shapiro et al., 2007; Hayes et al., 2006, Kabat-Zinn, 1994) have also discussed the role of mindfulness in identity formation, which was supported by the findings of this study that mindfulness leads to higher levels of vocational identity.

**Question 3.** What is the effect of thinking-feeling decision-making style on career thoughts?

It was hypothesized that a balanced thinking-feeling approach to decision making would be associated with fewer dysfunctional career thoughts, showing a curvilinear relationship. The findings of the ANOVA procedure did not support the hypothesis, but instead revealed that a thinking-oriented decision-making style was associated with fewer dysfunctional career thoughts, significantly more so than a balanced or feeling-oriented approach. This finding was supported by a significant correlation between thinking-feeling decision-making style and dysfunctional career thoughts ($r = -.319, p < .001$). The regression analysis provided additional information, revealing that thinking-feeling decision-making style significantly predicted dysfunctional career thoughts ($p = .003$), with a small effect size ($\beta = -.165$). Based on these
results, it appears that a thinking-oriented decision-making style leads to fewer dysfunctional career thoughts, and is more effective than a feeling-based decision-making style in terms of promoting more positive career thoughts.

Previous research (Rubinton, 1980; Phillips et al., 1984; Kreishok et al., 2009; Hartung & Blustein, 2002), as well as CIP theory (Sampson, et al., 2004) and anecdotal evidence, suggest that a balanced decision-making style is optimal. Harren’s (1979) conception and Walsh’s (1986) re-conception of vocational decision-making style both assumed and asserted that a rational approach to decision making is superior to other styles. The findings of this study, using a measure created by Walsh (1986) suggest that a rational, thinking-based approach may in f

**Question 4.** What is the effect of thinking-feeling decision-making style on vocational identity?

It was hypothesized that a balanced thinking-feeling approach to decision making would be associated higher levels of vocational identity, revealing a curvilinear relationship. The ANOVA procedure did not support the hypothesis, but instead found a linear pattern showing that a thinking-oriented decision-making style was associated with higher vocational identity, significantly more so than a balanced or feeling-oriented approach. This finding was supported by a significant correlation between thinking-feeling decision-making style and dysfunctional career thoughts ($r = .250, p < .001$). However, the regression analysis did not find thinking-oriented decision-making style to be a significant predictor of vocational identity ($p = .038, \beta = - .122$). These results provide mixed evidence for the effect of thinking-feeling decision-making style on vocational identity. Upon a closer examination of the interaction plot (See Figure 6), a thinking-oriented decision-making style appears to have a strong effect for the high mindfulness group, but in the low mindfulness group, thinking and balanced decision-making style are nearly equal, which may help to explain the lack of a strong effect for thinking-oriented decision-
making style on vocational identity. This finding indicates that thinking-oriented decision making leads to higher vocational identity, but only for those high in mindfulness.

**Question 5.** What is the effect of internal-external decision-making style on career thoughts?

It was hypothesized that a balanced internal-external approach to decision making would be associated with fewer dysfunctional career thoughts; revealing a curvilinear relationship. The findings of the ANOVA procedure did not support the hypothesis, but instead found a linear pattern showing that an internal-oriented decision-making style was associated with fewer dysfunctional career thoughts, significantly more so than a balanced or external-oriented approach. This finding was supported by a significant correlation between internal-external decision-making style and dysfunctional career thoughts ($r = -.368, p < .001$). The regression analysis provided additional information, revealing that internal-external decision-making style significantly predicted dysfunctional career thoughts ($p = .001$), with a medium effect size ($\beta = -.228$). Based on these results, it appears that an internal-oriented decision-making style is associated with fewer dysfunctional career thoughts, suggesting that an internal locus and personal agency in career decision making may lead to fewer dysfunctional career thoughts than relying on external feedback.

**Question 6.** What is the effect of internal-external decision-making style on vocational identity?

It was hypothesized that a balanced internal-external approach to decision making would be associated with higher vocational identity, revealing a curvilinear relationship. The findings of the ANOVA procedure did not support the hypothesis, but instead found a linear pattern showing that an internal-oriented decision-making style was associated with vocational identity, significantly more so than a balanced or external-oriented approach. This finding was supported by a significant correlation between internal-external decision-making style and dysfunctional
career thoughts \( (r = .343, p < .001) \). The regression analysis provided additional information, revealing that internal-external decision-making style significantly predicted dysfunctional career thoughts \( (p = < .001) \), with a medium effect size \( (\beta = .235) \). Based on these results, it is apparent that an internal-oriented decision-making style is associated with higher levels vocational identity, indicating that the use of an internal locus and personal agency in career decision making leads to a clearer and more stable picture of one’s goals, interests, and talents than relying on external feedback to make decisions.

**Question 7.** What is the moderating effect of the thinking-feeling vocational decision-making style on the relationships between mindfulness and career thoughts?

It was hypothesized that there would be no interaction effect between mindfulness and thinking-feeling decision-making style on dysfunctional career thoughts. The ANOVA procedure supported this hypothesis, finding that the interaction between mindfulness and thinking-feeling decision-making style was not significant on the outcome of dysfunctional career thoughts. The lack of significant interaction supports the finding that higher levels of mindfulness lead to fewer dysfunctional career thoughts, regardless of whether career decision making is approached with a thinking or feeling-based orientation. It was also hypothesized that there would be a differential effect, in that those in the balanced group would have fewer dysfunctional career thoughts than those in the thinking and feeling only groups. This hypothesis was not supported, as post hoc comparisons revealed that the thinking-based decision-making style was superior to the feeling-based and balanced approaches, leading to fewer dysfunctional career thoughts.

**Question 8.** What is the moderating effect of the thinking-feeling vocational decision-making style on the relationships between mindfulness and vocational identity?
It was hypothesized that there would be no interaction effect between mindfulness and thinking-feeling decision-making style on vocational identity. The ANOVA procedure supported this hypothesis, finding that the interaction between mindfulness and thinking-feeling decision-making style was not significant on the outcome of vocational identity. The lack of significant interaction supports the finding that higher mindfulness is associated with higher levels of vocational identity, regardless of whether career decision making is approached with a thinking or feeling-based orientation. It was also hypothesized that the balanced group would be optimal to predominantly thinking and feeling groups; however, this hypothesis was not supported. Instead, post hoc comparisons revealed that the thinking-based decision-making style was superior to the feeling-based and balanced approaches, leading to higher levels of vocational identity.

**Question 9.** What is the moderating effect of the internal-external vocational decision-making style on the relationship between mindfulness and career thoughts?

It was hypothesized that there would be no interaction effect between mindfulness and internal-external decision-making style on dysfunctional career thoughts. The ANOVA procedure supported this hypothesis, finding that the interaction between mindfulness and internal-external decision-making style was not significant on the outcome of dysfunctional career thoughts. The lack of significant interaction supports the finding that higher levels of mindfulness lead to fewer dysfunctional career thoughts, regardless of whether career decision making is approached with an internal or external orientation. It was also hypothesized that those in the balanced group would have fewer dysfunctional career thoughts than those in the internal and external groups. This hypothesis was not supported, as post hoc comparisons revealed that
the internal decision-making style was superior to the external and balanced styles, leading to fewer dysfunctional career thoughts.

**Question 10.** What is the moderating effect of the internal-external vocational decision-making style on the relationships between mindfulness and vocational identity?

It was hypothesized that there would be no interaction effect between mindfulness and internal-external decision-making style on vocational identity. The ANOVA procedure supported this hypothesis, finding that the interaction between mindfulness and thinking-feeling decision-making style was not significant on the outcome of vocational identity. The lack of significant interaction supports the finding that high mindfulness leads to higher levels of vocational identity, regardless of whether career decision making is approached with an internal or external orientation. It was also hypothesized that there would be a differential effect showing the balanced group to be optimal to predominantly internal and external groups; however, this hypothesis was not supported. Instead, post hoc comparisons revealed that the internal decision-making style was superior to the external and balanced approaches leading to higher levels of vocational identity.

### 5.3 Study Limitations

Several limitations relevant to this study should be considered that could affect internal and external validity. There are limitations related to the sample used in this study. Data were collected from a criterion sample of students in a large Southeastern university in the United States. These students were recruited through a subject pool that consisted of courses within the department of Educational Psychology and Learning Systems. Therefore, generalizability to all college students may not be appropriate. Additionally, students enrolled in the selected courses
may have differed from the general university population. However, recruiting students from various classes with a variety of majors and class standings likely helped to ensure external validity. The sample used in this study consisted of primarily Caucasian females, which limits the generalizability of this sample to other ethnic groups and males. Students were required to participate in research for course credit, which may have led to boredom and impulsive answering during the data collection process. However, this limitation may have been controlled by the minimal time and effort required to complete the study.

There are some limitations related to the measures used in this study. All measures were self-report, so the results were based on participants’ perceptions as opposed to actual data. Additionally, the instruments used in this study were closely examined and selected based on the assumption that they adequately operationalized and measured the variables of interest. However, it is possible that the instruments did not fully capture or represent the defined variables. Specifically, the VDSI was developed to measure decision-making style with the assumption that the thinking and internal approaches are superior to the feeling and external approaches. However, based on evidence reviewed in the literature, as well as anecdotal evidence, a balance of decision-making style appears to be the most effective approach. Therefore, the inherent bias in the construction of the VDSI may have influenced the results, contributing to the findings that the thinking and internal decision-making styles were associated with higher vocational identity and fewer dysfunctional career thoughts. Unfortunately, no other instrument could be located that conceptualized optimal decision making as a balance between thinking, feeling, internal, and external processes. Another important limitation related to the present study is the lack of prior research investigating mindfulness in a career context. There
was no solid foundation for understanding the research problem that this study intended to investigate, and therefore, an exploratory approach was necessary.

5.4 Directions for Future Research

This study examined the relevance of mindfulness in a career context. A number of authors have suggested that mindfulness may contribute to effective career problem solving and decision making (Jacobs & Bluestein, 2008; Brown & Ryan, 2003; Kabat-Zinn, 1994; Tolle, 1999). However, with the exception of a recent master’s thesis by Zhang, 2011, there have been no empirical studies that have specifically considered the role of mindfulness in career problem solving and decision making. Therefore, this study was conducted with the intention of shedding some light on this relatively unexplored area of research. The clear findings of this study illustrate some of the possible benefits of including mindfulness in future career counseling research. It is apparent that those high in mindfulness are more likely to have fewer dysfunctional career thoughts regarding their career decision, and to have higher levels of vocational identity. It is also apparent that such implications are true regardless of the style in which one makes career decisions. The study’s findings lead to additional questions that could be addressed by future research.

This study was the first to examine mindfulness in terms of its relation to decision-making style, dysfunctional career thoughts, and vocational identity. Given the exploratory nature of this study, replication is warranted to determine the sustainability of the findings. The procedures used for data collection in this study were not optimal, and resulted in limited generalizability beyond predominantly Caucasian, female undergraduates at a southeastern university. Replicating this study with a sample that is more representative of the general
population will add considerable external validity to the findings. Also, given the limitations of the VDSI in its ability to discern a balanced decision-making style, replication of this study with a measure that captures a balanced conceptualization of decision making is advisable. Additional research aimed at determining whether or not a balanced decision-making style is in fact optimal is also indicated by this study.

This study used a self-report measure to determine level of mindfulness, and its relation to various career outcomes. Another viable approach to investigating the role of mindfulness in career development would be to use an experimental pretest-posttest design with a standardized mindfulness intervention, in order to determine whether mindfulness practice leads to improvements in career-related outcomes. Future research should also focus on additional applications of mindfulness, decision-making style, vocational identity, and dysfunctional career thinking to determine their efficacy in improving career counseling outcomes. Discerning other constructs, such as volition of choice, locus of control, or self-efficacy, that may have an influence on mindfulness, vocational identity, and/or career thoughts may also be an efficacious direction for future investigation.

5.5 Implications for Practice

Today we are living in a quickly-evolving global economy, and high school and college students preparing to graduate are facing tougher economic and job market conditions than students from previous decades. Furthermore, many people are being forced into early retirement and career transitions, and are struggling with increased turmoil regarding the career problem-solving and decision-making process. These changes are likely to lead to increases in the frequency, intensity, and duration of cognitive and emotional difficulties in career decision
making, such as depression, anxiety, and attention problems. The increasing complexity of career development calls for the necessity of incorporating new approaches into career counseling designed to help individuals cope with these difficulties.

Mindfulness has clearly been shown to lead to improvements in depression, anxiety, and attention problems by assisting with cognitive restructuring and supporting healthier neurological function. Such effects lead to improvements in stress tolerance, calmness of mind, goal-oriented behavior, creative problem solving, positivity, and enhanced emotional well-being. The findings of the reviewed literature are very promising for the capacity of mindfulness to improve career decision-making and problem-solving effectiveness. Specifically, mindfulness has been posited as a method to help individuals engage in career exploration and information-seeking behavior, lead to job satisfaction, and cope with uncertainty involved in finding employment. The findings of the present study bolster the potential of mindfulness practice to promote healthy career development, since it has been shown to lead to decreases in dysfunctional career thoughts and higher levels of vocational identity, for all types of decision-makers. This is consistent with the notion that mindfulness leads to enhanced metacognitive functioning and improved self-knowledge, self-regulation, and identity formation. Therefore, mindfulness would likely be an efficacious career counseling intervention for the improvement of dysfunctional career thoughts, development of vocational identity, and clarification of self-knowledge; although additional research is still needed.

Based on the reviewed literature and the findings of the present study, it is clear that promoting mindfulness philosophical viewpoints and practice will be beneficial in career counseling practice. The best way to learn about the benefits of mindfulness is through personal experience, and it is therefore recommended that career counselors interested in incorporating
mindfulness into their counseling approach commit to a personal mindfulness practice themselves (Siegel, 2010; Alexander, 2008; Kabat-Zinn, 1994).

In addition to being able to speak from personal experience, it is also important that practitioners who wish to utilize mindfulness in career counseling stay up-to-date on research findings and information regarding the practice of mindfulness, since it is a relatively recent and quickly-expanding area of research. Developing an understanding, and becoming proficient in explaining the mechanisms and benefits of mindfulness is important for counselors in order to improve clients’ investment in developing a personal practice.

Research has clearly supported the capacity of mindfulness to promote cognitive restructuring, by allowing for the awareness of and disengagement from automatic, negative, and ruminative thinking. Mindfulness also promotes a willingness to face adversity and engage in proactive behavior. Furthermore, increased mindfulness can help clients to view changes with more equanimity, and see transitions as opportunities instead of as obstacles. Mindfulness also allows one to let go of attachment to past difficulties and expected future outcomes, freeing the mind to focus on creating an optimal experience in the present.

Benefits of mindfulness can be broken down into the following categories for discussion:

- Cognitive (improved concentration, memory, clarity of thought, and decision making)
- Emotional (increased optimism, autonomy, confidence, and life satisfaction; decreased anxiety and depression)
- Behavioral (improved problem-solving, coping ability, resilience, and determination; decreased avoidance and behavior inhibition)
- Physical (decreased muscle tension, blood pressure, cortisol production; improved sleep, pain, and vitality)
• Spiritual (greater sense of meaning and purpose, self-awareness, connection to others, intuition, and wisdom)

When discussing mindfulness with clients, counselors may find it helpful to use metaphors to describe what mindfulness is, and what it can do. The surfer metaphor outlined in the beginning of this paper gives an excellent depiction of how mindfulness can allow one to ride atop the waves of thought and emotion, without becoming submerged by them. Untying a knot is a metaphor that can be used to depict mindful problem-solving. In order to successfully untie a knot, it is necessary to focus on the task at hand, and continually observe the knot from new perspectives. A method for introducing this metaphor may be to ask a client “If I handed you a knot and asked you to untie it, what would you do?” Another helpful metaphor is to think of mindfulness as a pot. Holding difficult thoughts and emotions in the pot allows one to cook them, transform them, and make them easier to digest. There are many additional metaphors that have been used to describe mindfulness, and counselors are encouraged to help clients come up with personalized and unique versions of metaphors to aid in deeper understanding.

Helping clients to become knowledgeable of the philosophical viewpoints, effects, and mechanisms of mindfulness is important, although committing to a personal practice is the only way for clients to truly understand the benefits. Running standardized mindfulness groups, such as MBSR or MBCT is likely the most dependable method for incorporating mindfulness practice as an intervention. Other mindfulness-based groups may be developed by practitioners who are knowledgeable of and experienced in mindfulness practice. When working individually with a client, it is often helpful to practice mindfulness within the session. Possibly the most widely-used mindfulness practice is to watch the breath for a predetermined amount of time. Clients can be instructed to bring their full attention to their breathing, to allow their breath to be full and
natural, and observe how the breath feels without trying to change it in any way. Explain that when the mind wanders, gently let the thoughts go without judging, and bring awareness back to the breath. It is inevitable that the mind will wander, and clients should not be discouraged if they find a chaotic, busy mind.

Another helpful practice for beginning and experienced mindfulness practitioners alike is to keep a mindfulness journal. Writing down and tracking experiences can help individuals become aware of patterns and barriers to practice, and access deeper insight. Clients should be encouraged to discover what works for them, to develop and implement their own personal practice, to begin to see every moment as a new and novel experience, and to cultivate mindfulness more and more throughout their everyday lives.

It is also recommended that career counselors have resources available, as well as referral sources, to aid in the understanding and practice of mindfulness. There are a plethora of helpful resources available in the form of books, websites, videos, smartphone applications, and other assistive technology; many of which are free or affordable. It is important that clients are referred to credible sources; therefore, any potential resources should be critically reviewed by the practitioner prior to referring for client use.

The findings of the present study warrant other practical implications as well. With regard to decision-making style, the findings suggest that thinking-oriented and internal styles are superior to feeling-based and external styles for promoting positive career thinking and higher levels of vocational identity. Whether or not these findings reflect the true superiority of thinking and internal styles remains undetermined; however, it may be prudent for career counselors to encourage systematic, rational problem solving and the reliance on personal agency to improve dysfunctional career thoughts and foster higher levels of vocational identity.
Lastly, since mindfulness, decision-making style, vocational identity, and dysfunctional career thoughts were found to be closely related to one another, career counseling practitioners should consider these constructs together when working with individuals who are in the midst of a career problem or career decision.

5.6 Conclusions

This exploratory study examined the role of mindfulness in a career development context, by investigating the relationships among mindfulness, vocational decision-making style, dysfunctional career thoughts, and vocational identity. Correlation analyses demonstrated statistically-significant relationships between all variables of interest. ANOVA procedures revealed strong main effects for mindfulness and decision-making style for dysfunctional career and higher vocational identity, suggesting that those higher in mindfulness as well as those with thinking-based and internal decision-making styles had fewer dysfunctional career thoughts and higher vocational identity. No interactions were found, indicating that high mindfulness was associated with lower levels of dysfunctional career thoughts and higher levels of vocational identity, for all types of decision-makers. Follow-up regression analyses revealed that mindfulness and decision-making style together accounted for 32.2% of the variance in dysfunctional career thoughts, and 22.8% of the variance in vocational identity. The study’s findings contribute to the research literature in many ways, and provide evidence for the benefit of incorporating mindfulness into career counseling. Several suggestions were offered for future research and practical applications in this area.
APPENDIX A

IRB APPROVAL

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673, FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 3/15/2012

To: Jacob Galles [jgalles@admin.fsu.edu]

Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Mindfulness in a career context: Connections to career thoughts, vocational identity, and decision-making style

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and one member of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 3/13/2013 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by
the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Janet Lenz, Advisor
HSC No. 2012.7898
APPENDIX B

INFORMED CONSENT

Informed Consent

Mindfulness in a career context: Connections to career thoughts, vocational identity, and decision-making style

Dear Student,

I am a doctoral student under the direction of Professor Janet Lenz in the Department of Educational Psychology and Learning Systems in the College of Education at Florida State University. I am conducting a research study to examine the relationships among mindfulness, career thoughts, vocational identity, and decision-making style.

Your participation today will involve completing a demographic questionnaire and four different questionnaires about personal and career characteristics. Completion of these forms should take about 30 minutes. All forms must be completed in one sitting, within a 2-hour period.

Information obtained from you during the course of this study will remain confidential, to the extent allowed by law. Your responses to the consent form, demographic form, and questionnaires will be stored in locked cabinets, out of public view and under the control of the principal investigator and/or faculty advisors. Data collected from this study will be retained in a secure manner until February 28, 2019, after which time it will be destroyed. The results of the research study may be published, but your name will not be used, and the results will be presented in group format only. You will not be offered individual feedback from the assessments you take today.

Your participation in this study is voluntary. You will not be paid for your participation. Completion of this study will count for one credit toward your research requirement for one of the following courses: EME 2040, EDF 4210, EDF 4430, SDS 4481, or APK 4400. See your course instructor for additional options to fulfill your research requirement. If you choose not to participate or to withdraw from the study at any time, there will be no penalty.

The discomfort and risk reasonably expected by your participation in this project is that you may become more aware of personal characteristics that relate to career decision making. This awareness may cause mild sadness, anxiety, or thoughts and feelings of depression. If you experience such a reaction after participating in this study, please contact FSU’s Career Center (850-644-6431) or the University Counseling Center (850-644-2003) to discuss your situation.

Although there may be no direct benefit to you, a possible benefit of your participation is that you may gain a better understanding of factors influencing your career decision making. This information also has the potential to improve the ability of counselors and advisors to address issues that may interfere with career problem solving and decision making.

If you have any questions concerning this research study, please call Jacob Galles or Janet Lenz, Ph.D., at (850) 644-6431. If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.

Sincerely,

Jacob Galles, B.A.

I give my consent to participate in the above study.

(Signature)                                      (Date)

(Print Your Name Here)

FSU Human Subjects Committee approved on 5/14/2012. Void after 3/13/2013. HSC #
2012.8373
APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

Major

Age (in years)

Sex

- Male
- Female

Ethnic Group

- American Indian or Alaskan Native
- Asian
- Black/African American
- Hawaiian Native or Other Pacific Islander
- Hispanic/Latino
- White
- Other
- Prefer Not to respond
REFERENCES


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BIOGRAPHICAL SKETCH

Jacob Galles is a doctoral candidate at Florida State University in the combined Counseling Psychology/School Psychology program. He received his Bachelor’s degree in Psychology from the University of Northern Iowa, and served in the AmeriCorps for two years before continuing his graduate work. After two years studying School Psychology at a master’s level, he transitioned into the Ph.D program and began to focus on counseling and career development.

Mr. Galles has held several positions providing counseling and psychological assessment through various practicum opportunities. He also held an ongoing position as a career advisor within Florida State University’s Career Center for three years, and instructed an undergraduate Career Development course for seven semesters. Mr. Galles completed a master’s thesis, and co-authored a paper based on the results, which has been accepted for publication in Career Development Quarterly. He has co-authored two additional articles, had a book review published, has presented at national conferences on four occasions, and serves on the editorial board for a major journal.

Mr. Galles is currently completing his predoctoral internship at the Vanderbilt University Psychological and Counseling Center, where he provides individual and group psychotherapy, as well as biofeedback. He specializes in mindfulness-based approaches to counseling, and facilitates a weekly mindfulness group with a veteran population.