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An Exploration of the State-Trait Continuum in Counseling and Positive Psychology

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AN EXPLORATION OF THE STATE-TRAIT CONTINUUM

IN COUNSELING AND POSITIVE PSYCHOLOGY

by

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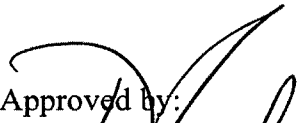M.S. Psychology, August 1998, Old Dominion University

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ABSTRACT

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Counselors value remaining positive in the face of adversity. Consequently,

positive psychology has placed an emphasis on uncovering how long-enduring

positive traits (e.g., hope, wisdom, and creativity) can be developed from short-term

positive states. This search has resulted in positive psychology's conceptualization

of a state-trait continuum. This study explores the state-trait continuum by examining

possible quantitative relationships between a state instrument (the Learning Environment

Preferences) and a trait instrument (the Myers-Briggs Type Indicator). Research question

1 found a significant predictive relationship between two MBTI scales (S-N and J-P) and

the LEP's cognitive complexity index. Research question 2 found a significant

relationship suggesting that very clear preference scores across the MBTI dichotomies

are associated with higher cognitive complexity.

ACKNOWLEDGEMENTS

To Dr. Ted Remley: Thank you so much for keeping me on track and focused (especially with all the little details), your caring support has been essential during this journey.

To Dr. Christine Ward: Thank you for your willingness to brave my abstractions with such an unwaveringly positive and encouraging manner.

To Dr. Dana Burnett: Thank you for your helpful and encouraging feedback.

To my friends and family: Thank you for your understanding during this demanding experience. I promise to be more available in the future.

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CHAPTER ONE: INTRODUCTION

As a future counselor educator, I turn to the CACREP standards to better understand my professional identity. In reviewing CACREP's counselor identity section, I noted the following aspirations: "promoting social justice," to "promote optimal wellness and growth of the human spirit, mind, or body," "eliminating biases, prejudices, and processes of intentional and unintentional oppression and discrimination," and a focus on client resilience (2011, p. 11). After synthesizing these characteristics and motives, I achieved an overall sense that counselors aspire to be an extremely positive group. The following two studies however appear to be in contradiction to the stated philosophy of counselors. First, Meyers (2000, p. 56) performed "an electronic search of Psychological Abstracts since 1887 [which] turned up 8,072 articles on anger, 57,800 on anxiety, and 70,856 on depression, while only 851 abstracts mentioned joy, 2,958 happiness, and 5,701 life satisfaction. In this sampling, negative emotions trounced positive emotions by a 14-to-1 ratio (even greater than the 7-to-1 margin by which treatment exceeded prevention)." Second, Luthans (2002, p. 697) in "a search of contemporary literature in psychology as a whole found approximately 200,000 published articles on the treatment of mental illness; 80,000 on depression; 65,000 on anxiety; 20,000 on fear; and 10,000 on anger; but only about 1,000 on positive concepts and capabilities of people." This represents a negative/positive publication ratio of approximately 375-to-1. These two studies highlight that psychological (and counseling) research is distinctively focused on the negative as opposed to the positive. This predisposition, however, is not a new observation. Maslow (1954, p. 354) indicated, "it is as if psychology had voluntarily restricted itself to only half its rightful jurisdiction, and

that the darker, meaner half." Seligman and Csikszentmihalyi (2000, p. 5) provided a similar, but more recent vantage point, "the exclusive focus on pathology that has dominated so much of our discipline [psychology] results in a model of the human being lacking the positive features that make life worth living." If counselors aspire for a positive professional identity, but the research has predominantly focused on the negative, how can this disparity be remedied?

Purpose of the Study

The purpose of this study was to examine "positive psychology" through the exploration of the state-trait continuum. In direct response to the trend of negatively-focused research in psychology and counseling, Seligman and Csikszentmihalyi (2000) introduced positive psychology as "a science of positive subjective experience [states], positive individual traits, and positive institutions [that] promises to improve quality of life and prevent the pathologies that arise when life is barren" (p. 5). The state-trait continuum is a structure theorized by positive psychologists to outline "the relationship between momentary experiences of happiness [states] and long-lasting well-being [traits]" (Seligman & Csikszentmihalyi, 2000, p. 11). In other words, the state-trait continuum explores how positive traits (e.g., hope, wisdom, and creativity; to name a few) might be developed. This study explored the state-trait continuum by examining the mathematical relationships between a pre-existing instrument that measures an individual's states and one that measures traits. The state instrument used was the Learning Environment Preferences (LEP; Moore, 1989b). The LEP can provide both continuous and categorical data regarding the Perry developmental scheme (dualism, early multiplicity, late multiplicity, and relativism). The trait instrument used was the Myers-Briggs Type Indicator, Form M (MBTI; Myers, McCaulley, Quenk, & Hammer,

1998). The MBTI can provide both continuous and categorical data regarding the four Jungian personality preference dichotomies (extraversion/introversion, sensing/intuition, thinking/feeling, and judging/perception). In summary, the purpose of this research study was to explore positive psychology's state-trait continuum by determining mathematical relationships between pre-existing state and trait instruments (i.e., the LEP and MBTI).

Importance of the Study

This study explored the state-trait continuum, a key concept of positive psychology (Seligman & Csikszentmihalyi, 2000). Through repeated exploration and possible verification of the state-trait continuum, a more balanced research focus including both positive and negative human trait development might result. Additionally, advocating for positive human characteristics corresponds directly to CACREP's aspirations to advance theories that aid optimal wellness, growth, and development of the human body, emotions, mind, and spirit over the lifespan (2011). Through the exploration of positive psychology's state-trait continuum, this study provided research to facilitate the development of positively-minded counselor research, practitioners, and practice in direct correspondence to CACREP's guidelines for a positive counselor professional identity.

Furthermore, increased understanding about incorporating continua formation between the traditionally dichotomous state-trait variables may benefit more than positive psychology. Many other fields of study continue to explore the benefits of incorporating continuous structures between traditionally categorical or dichotomous variables. This study could contribute to ties between positive psychology, counseling, and the overall world of research.

Research Questions

The *general* questions that prompted this study were: (1) What is the state-trait continuum; (2) What (if any) relationship exists between the concepts of state and trait; (3) Can positive human traits be developed from positive human states; (4) What are the conceptual and quantifiable relationships between the LEP (a state instrument) and the MBTI (a trait instrument)? The *specific* research questions investigated in this study were: (1) Which combination of the MBTI preference dichotomies (extraversion/introversion, sensing/intuition, thinking/feeling, and judging/perception) best predicts LEP's cognitive complexity index score; and (2) To what extent does LEP's cognitive complexity index score predict the overall MBTI preference clarity category (very clear, clear, moderate, and slight)?

Limitations and Delimitations

Regarding limitations, "internal validity is the basic minimum without which any experiment is uninterpretable: Did in fact the experimental treatments make a difference in this specific experimental instance" (Campbell & Stanley, 1963, p. 5)? "External validity asks the question of generalizability: To what populations, settings, treatment variables, and measurement variables can this effect be generalized" (Campbell & Stanley, 1963, p. 5)? The issues of internal and external validity in this study largely depend on the internal and external validity of the instruments utilized (i.e., the LEP and MBTI). The specific validities of each instrument are discussed in the instrumentation section. The internal validity threats highlighted by Campbell and Stanley (1963; e.g., history, maturation, testing, instrumentation, statistical regression, experimental mortality, and selection-maturation interaction) were largely aimed at true experimental

designs in which participants received multiple exposures to measurement. Because this was a non-experimental design in which participants receive only a single exposure to measurement, many of these internal validity threats were non-applicable. One internal validity threat however might have related to using both the LEP and MBTI together. There could be an interaction effect that reduces the accuracy of either or both instruments. In order to control for possible instrument-taking order-effects, the one page participant instruction sheet clarified the completion of the consent form first, the Demographic sheet second, the LEP third, and the MBTI last. In this way, if there were order-effects, they were standardized. A second internal validity threat could have related to participants possibly receiving extra credit from a class in order to participate or that the experiment was introduced by a class instructor. In this way, participant/student motivation may have affected their completion of the instruments. Regarding external validity or generalizability, the use of the undergraduate student population reduced the generalizability of results to other populations.

Assumptions of the Study

First, it was assumed that the theoretical premise of the state-trait continuum has merit, specifically that traits (whether positive or negative) can be developed over the entire life span. Furthermore, although traits by definition last a longer time than states, humans can develop new positive or negative traits at any juncture of their lives. This assumption was echoed by the CACREP professional identity guidelines. Second, it was assumed that the LEP was an appropriate state instrument and the MBTI was an appropriate trait instrument in order to explore the possible relationships between states and traits. Additionally, it was assumed that students completed the instruments truthfully

and thoughtfully. Furthermore, it was assumed that the course instructors followed the procedures provided to them to collect data from their students. Overall, the synthesized assumption of this study was that the development of positive or negative traits throughout the lifetime could be examined using instruments and resources selected.

Definition of Terms (as used in this study)

State	An experience which appears to last a shorter duration, tends to take a shorter time to develop, and is associated with faster acting domains (or organic systems).
Trait	An experience which appears to last a longer duration, tends to take a longer time to develop, and is associated with slower acting domains (or organic systems).
Continuum	A higher order measurement structure compared to a bi-modal (dichotomous, bi-variate, dualistic, nominal, categorical, polarized, black or white, and all or nothing) structure.
State-trait continuum	A conceptualization of progressive, systematic development of human experience across domains of varying degrees of duration. Specifically, this developmental progression contains the following structures (from lower to higher order): 'bi-modal' (categorical), 'zero-point tri-modal' (categorical), bi-polar (positive/negative, ordinal) continuum, and Jungian (positive/positive, interval) continuum. *Note*: associated with a progressive and systematic decrease in negative experience and a corresponding increase in positive experiences. Idealistically

	parallel with the goals of counseling and positive psychology.
Counseling	"Counseling is a professional relationship that empowers diverse individuals, families, and groups to accomplish mental health, wellness, education, and career goals" (ACA, 2012, para. 5).
Positive psychology	"A science of positive subjective experience [states], positive individual traits, and positive institutions [that] promises to improve quality of life and prevent the pathologies that arise when life is barren" (Seligman & Csikszentmihalyi, 2000, p. 5).
Positive organizational behavior	Building on positive psychology, positive organizational behavior (POB) focuses on "adopting a more utilitarian, cost-benefit perspective emphasizing the goal of enhanced workplace performance" (Wright, 2003, p. 437).
Positive psychological capital	Building on POB, Positive Psychological Capital (PsyCap) focuses on 'the four positive psychological capacities of confidence, hope, optimism, and resilience [which] are measurable, open to development, and can be managed for more effective work performance" (Luthans, Luthans, & Luthans, 2004, p. 47).

CHAPTER TWO: LITERATURE REVIEW

Chapter 2 reviews literature related to this study. The chapter is organized as follows: positive psychology's exploration of the state-trait continuum, state-trait continuum research from other fields of study, research related to the MBTI and LEP, and an overall summary of research presented in this chapter.

Positive Psychology's Exploration of the State-Trait Continuum

In direct response to the long-standing trend of negatively-focused research in psychology and counseling, Seligman and Csikszentmihalyi (2000) introduced the concept of "positive psychology." Additionally, they explained positive psychology as "a science of positive subjective experience [states], positive individual traits, and positive institutions [that] promise to improve quality of life and prevent the pathologies that arise when life is barren" (p. 5). Sheldon and King (2001) asked and answered the question, "what is positive psychology? It is nothing more than the scientific study of ordinary human strengths and virtues. Positive psychology revisits 'the average person,' with an interest in finding out what works, what is right, and what is improving. It asks, 'what is the nature of the effectively functioning human being, who successfully applies evolved adaptations and learned skills?' As such, we argue that positive psychology is simply psychology (p. 206)." According to Gable and Haidt (2005), "positive psychology is the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions" (p. 103). Additionally they asked and answered the following question, "why do we need a movement in positive psychology? The answer is straightforward. The science of psychology has made great strides in understanding what goes wrong in individuals, families, groups, and institutions, but

these advances have come at the cost of understanding what is right with people" (p. 105).

Seligman and Csikszentmihalyi (2000) not only introduced positive psychology, but from the beginning also suggested "gaps in the knowledge that may be the challenges at the forefront of positive psychology" (p. 11). "One fundamental gap concerns the relationship between momentary experiences of happiness and long-lasting well-being" (p. 11). In other words, there is a need to explore the relationship between the state of happiness and the trait of well-being. Additionally, they highlighted many traits associated with well-being (and the new positive psychology): hope, wisdom, creativity, future mindedness, courage, spirituality, responsibility, perseverance, autonomy, self-regulation, flow, capacity for love, courage, interpersonal skill, aesthetic sensibility, forgiveness, originality, nurturance, altruism, civility, moderation, tolerance, work ethic, etc. The questions become, how do these positive traits get developed from positive states (or developed in general) and how will positive psychology proceed in order to overcome this gap in knowledge?

Wright (2003), building on positive psychology, defined positive organizational behavior (POB) as "adopting a more utilitarian, cost-benefit perspective emphasizing the goal of enhanced workplace performance" (p. 437). In other words, POB is the branch of positive psychology that focused on institutions. Additionally, Wright (2003) clarified that "Maslow and others went on to create humanistic psychology ... [which is] clearly the intellectual forerunner of positive psychology and POB" (p. 440). Luthans (2002) highlighted that POB "includes state-like concepts rather than the dispositional, trait-like taxonomy of character or virtues called for in positive psychology" (p. 698). Specifically,

regarding the exploration of states and traits, POB defined its focus on the exploration of states, while clarifying that positive psychology would continue to focus of traits. Additionally, this study softened the traditional distinction between states and traits by using the terms 'state-like' and 'trait-like.'

Luthans, Luthans, and Luthans (2004) built on POB with the concept of Positive Psychological Capital (PsyCap). Specifically, PsyCap focuses on 'the four positive psychological capacities of confidence, hope, optimism, and resilience [which] are measurable, open to development, and can be managed for more effective work performance" (p. 47). In this way, PsyCap focused on the positive individual within the context of a positive institution. Seligman, Steen, Park, and Peterson (2005) reported on the progress of positive psychology, since its introduction in 2000. Despite a definition of positive psychology as "an umbrella term for the study of positive emotions [states], positive character traits, and enabling institutions" (p. 412) and focused on interventions that increase the longevity of happiness, there is no mention of the state-trait continuum directly. Interestingly, "as we turn our attention to the deliberate cultivation of character strengths, we should be as concerned with how to keep certain strengths from eroding on the journey to adulthood as we are with how to build others from scratch" (p. 412). In this way, there is a specific mention of the development of increasingly trait-like ["an individual difference with demonstrable generality and stability" (p. 411)] characteristics, but also the concern of the loss of these longer-term (trait-like) characteristics. Additionally, this research highlighted how traits are not permanent or immutable, but instead only demonstrate relative stability over time.

In another summary, Linley, Joseph, Harrington, and Wood (2006) explored of the "past, present and (possible) future" trends in positive psychology (p. 3). They do not directly mention the state-trait continuum either, but instead highlight the positive and negative poles of the human condition; "by doing so, we do not mean in any way to imply or support the dichotomization of the human experience into positive and negative, in contrast, we view them as falling along a continuum" (p. 3).

Consequently, by 2006, two progress summaries of positive psychology had neither specifically mentioned the phrase 'state-trait continuum,' but had however highlighted the relative instability of traits and suggested a continuum between positive and negative human experiences whether they be states or traits. Chronologically forward, Luthans and Youssef (2007) specify "like positive psychology, the recently emerging POB does not proclaim to represent some new discovery of the importance of positivity but rather emphasizes the need for more focused theory building, research, and effective application of positive traits, states, organizations, and behaviors as represented in this review" (p. 322). Although they conceptually address a continuum framework between "state, state-like, trait-like, and trait" categories, they do not specifically mention the title 'state-trait continuum.' They did however clarify that, "this proposed positivity framework would also require the investigation, application, and integration of nontraditional or understudied positive psychological capacities and a multidisciplinary approach to draw from the relevant literature in other fields of study" (p. 340).

Wright (2007) also supported the importance of exploring this framework. Specifically, "there is a dire need for the positive movements [positive psychology, POB, and PsyCap] to reach a conceptual consensus regarding exactly what temporal period

constitutes a state and what constitutes a trait" (p. 180). Similarly, Youssef and Luthans

(2007) directly mention the phrase 'state-trait continuum' when they wrote, "similar to

other conceptualizations in the field of psychology, there seems to be recognized degrees

of stability and more of a state-trait continuum rather than a construct being either stable

or not stable, either a trait or state" (p. 776). Futhermore, Luthans, Avolio, Avey, and

Norman (2007) not only mentioned the phrase 'state-trait continuum' as it related to the

positive movements, but clearly identified, defined, and provided domain examples of the

four categorical positions between state and trait: "(1) Positive States—momentary and

very changeable; represents our feelings. Examples could include pleasure, positive

moods, and happiness. (2) 'State-Like'—relatively malleable and open to development;

the constructs could include not only efficacy, hope, resilience, and optimism, but also a

case has been made for positive constructs such as wisdom, well-being, gratitude,

forgiveness, and courage as having 'state-like' properties as well. (3) "Trait-Like"—

relatively stable and difficult to change; represents personality factors and strengths.

Examples could include the Big Five personality dimensions [e.g., NEO-PI; Costa &

McCrae, 1985], core self-evaluations, and character strengths and virtues (CSVs). (4)

Positive Traits—very stable, fixed, and very difficult to change. Examples could include

intelligence, talents, and positive heritable characteristics" (p. 544). Regarding these

definitions, instead of being 'state' and 'trait' instruments, the LEP and MBTI might be

described as 'state-like' and 'trait-like' instruments, respectively. Additionally, Luthans

et al. (2007) went on to explain "states and traits are often considered as independent,

dichotomous categories of constructs. Nevertheless, in defining what constitutes PsyCap

we portray states and traits along a continuum largely determined by the relative degrees

of stability in measurement and openness to change and development" (pp. 543-544).

Avey, Luthans, and Mhatre (2008) while "reflecting on the current research needs

of POB and its application through psychological capital or PsyCap, [specify that] two

closely related important issues immediately surface. First is the need for the better

understanding of the so-called 'state–trait continuum' so central to the meaning and

application of POB and PsyCap" (p. 705).

Because Seligman and Csikszentmihalyi (2000) expressed a need for evidence

that traits can be developed (from states), positive psychologists have worked to resolve

the state-trait distinction. Theoretically, Fredrickson (2001) and her "broaden-and-build

theory ... posits that experiences of positive emotions broaden people's momentary

thought-action repertoires [states], which in turn serves to build their enduring personal

resources [traits], ranging from physical and intellectual resources to social and

psychological resources. Specifically, these broadened mindsets carry indirect and long-

term adaptive benefits because broadening builds enduring personal resources, which

function as reserves to be drawn on later to manage future threats" (p. 4). Overall,

Fredrickson (2001) highlighted that emotional states develop into beneficial traits as a

part of human survival adaptation.

In summary of positive psychology's exploration of the state-trait continuum,

positive psychology has over time become an umbrella term that included POB and

PsyCap. Additionally, despite a theoretical framework (the broaden-and-build theory)

and having named, defined, and punctuated the need to study the state-trait continuum

there remains a current need for additional research on the development of positive traits

from positive states. Furthermore, positive psychology has also proposed a focus be placed on exploring a continuum between positive and negative human experiences. These propositions suggest the following question, could positive psychology's developing state-trait continuum not only include a continuum between positive states and traits, but also account for both positive and negative human characteristics (whether state, trait, or anywhere between)? Additionally, research suggests the connection between states and traits may be a product of relative degrees of stability. From another perspective, different domains of experience (e.g., emotions, constructs like hope, personality, and talents) may appear to last different lengths of time and correspondingly tend to take different lengths of time to develop. Despite the relative degrees of stability, the developmental pattern may be similar. This pattern of development may be the state-trait continuum. In this way, the state-trait continuum is a conceptualization of progressive, systematic development of human experience across domains of varying degrees of duration. If so, the question becomes what structures would account for the development across domains of varying degrees of duration?

State-Trait Continuum Research from Other Fields of Study

This section follows the Luthans and Youssef (2007) suggestion to use a "multidisciplinary approach to draw from the relevant literature in other fields of study" (p. 340) for examples of state and trait connections and use of developmental structures. Traditionally, psychology "has distinguished between state and trait, giving the label 'mood' (state) to that which appears ephemeral and due to temporary conditions and giving the label 'trait' to that which appears to be due to relatively permanent internal dispositions" (Allen & Potkay, 1981, p. 917). Consequently, how can traits be developed

from states if traditional psychology has created a clear dichotomy between the concepts of state and trait? Allen and Potkay (1981) argued that psychology has created an "arbitrary distinction between states and traits" (p. 916). Additionally, "it is clear that should the arbitrariness of the state-trait distinction be recognized in the future, currently active research programs would be helped .... it is equally clear that recognition would not resolve the controversy concerning whether there exist dimensions along which appreciable consistency of behavior can be shown and people for whom consistency can be shown along given dimensions" (p. 926). This study directly questioned the traditional state-trait distinction and seemed to suggest that a structure (or structures) may exist between states and traits. Correspondingly, Kroner and Reddon (1992) created a State-Trait Anger Scale (STAS) and found "although there was a factor distinction between state- and trait-anger, test-retest coefficients were stronger for the state than for the trait subscale, thereby questioning a temporal state/trait distinction" (p. 397). This study highlighted the lack of reliability or temporal stability regarding the traditional state-trait distinction in anger and possibly other expressions of emotion. Regarding personality disorders, Tyrer et al. (2007), focused on the DSM-IV diagnostic differential between Axis I (treatable, non-permanent conditions) and Axis II (personality disorders which were once perceived as 'pervasive' or 'ingrained'). This distinction between Axis I and Axis II is analogous to the distinction between state and trait. Tyrer et al. went on to cite research that illustrated how this distinction was "wrong, as we now have abundant evidence that personality status [traits or Axis II], at least that assessed by our current instruments, is unstable" (p. 54). Additionally, they suggested that the DSM-V should include changes that reflect this empirically substantiated dynamic. Skodol et al. (2011);

Widiger and Trull (2007); and Widiger, Simonsen, Krueger, Livesley, and Verheul (2005) also highlighted personality trait instability as a serious issue that necessitated change in the pending DSM-V. In summary, the clear dichotomous distinction between state and trait is theoretically and empirically in question. Specifically, the instability of trait measurements highlights the need for different ways to conceptualize and measure states and traits.

The question becomes, if states and traits do not always adhere to a strictly dichotomous structure, what structure(s) might they adhere? Analogously, Gray (1988) identified that the classic fight or flight (dichotomous) threat response was established by Walter Cannon in 1929. Additionally, Gray (1988) established and scientifically validated the 'freeze response.' Since that time, the once dichotomous (bi-modal) classic, was renamed the fight, flight, or freeze response (a tri-modal categorical model; Bracha, Williams, Ralston, Bracha, & Matsukawa, 2004). This research suggests the question, are there freeze-like middle-point categorical variables on other dichotomies (including the classic state-trait dichotomy)? Consequently, Perry, Pollard, Blakley, Baker, and Vigilante (1995) used the fight, flight, and freeze threat-reaction scheme to suggest an 'arousal/ dissociation continuum.' Specifically, long-term, repeated fight or flight responses were associated with arousal-based diagnoses (e.g., Oppositional-defiant disorder), while freeze responses were associated with dissociation-based diagnoses (e.g., ADHD, Inattentive type). This research highlights how the dichotomous poles have meaning (i.e., flight and flight), but also suggested that the middle point (or zero-point; freeze in this example) between the poles may also have a distinct meaning other than the absence of the attributes of one pole or the other. Regarding a conceptual zero-point,

Neukrug (2011) referenced "Sigmund Friedlander, a philosopher who forwarded the idea that opposites [dichotomies] define the individual and that we all seek a 'zero-point,' or a point that brings us to closure or homeostasis. Friedlander suggested that when an organism expresses too much of one attribute, it becomes necessary for the organism to compensate by bringing in the opposite attribute in order to restore balance or equilibrium" (p. 182). Similarly, Jung (1964) stated "in every pronounced type there exists a specific tendency towards compensation for the one-sidedness of his type, a tendency which is biologically expedient since it is a constant effort to maintain psychic equilibrium" (p. 10). In summary, there is theoretical and empirical research to suggest that there may be distinctively meaningful zero-point tri-modal structures that can develop between dichotomies (bi-modal structures). Additionally, the fight-flight research as a whole suggests a developmental progression from bi-modal (fight or flight), to zero-point tri-modal (fight, flight, or freeze), then to the establishment of a continuum (arousal/dissociation continuum).

What does the research suggest accounts for the progression between states and traits? Regarding neurobiology, Perry et al. (1995) suggested a relationship between states and traits during the development of the brain in that *repeated exposure* to states influenced the formation of brain structures that result in long-lasting traits. This study shared similarity with Fredrickson's (2001) broaden-and-build theory. Correspondingly, regarding statistics, Fleeson (2001) envisioned "traits as density distributions of states" (p. 1011). Specifically, there was a relationship found between states and traits in that *repeated measures* of states generated a distribution curve that reveals traits. Not only did this study suggest that the direct relationship between states and traits are measurable, but

suggested that the difference between states and traits was a question of temporal factors. Along the same line, Watson, Clark, and Tellegen (1988), developed the Positive Affect and Negative Affect Scales (PANAS). These researchers found that the PANAS demonstrated appropriate stability for both short-term and long-term instructions. This study highlighted how the same instrument can be used to measure both state and trait domains. This instrument and research suggested that the difference between a state and trait might be a product of the length of temporal duration specified. In summary, there is research to suggest the development from states and traits progress along a continuum of increasing temporal duration.

If continua have developed between previously dichotomous variables, what are the benefits of the continua? Perry et al. (1995) used the classic fight, flight, and freeze threat-reaction scheme to suggest an arousal/dissociation continuum. This research suggested a neuro-biologically-based continuum between arousal and dissociative states and subsequent diagnoses (longer lasting formations). It was suggested that the continuum would increase understanding and improved diagnostic capacities.

Regarding the autism spectrum, Baron-Cohen, Wheelwright, Skinner, Martin, and Clubley (2001) indicated that "there is also an assumption, still under debate, that autism and AS [Asperger's syndrome] lie on a continuum of social-communication disability, with AS as the bridge between autism and normality. The continuum view shifts us away from categorical diagnosis and towards a quantitative [higher order] approach" (p. 6). This study highlighted how the previous, non-spectrum (non-continuum) DSM diagnostic approach may have resulted in inadequate diagnoses. Additionally, this research highlighted how continua can be formed creating gradations between normal functioning

and increasing dysfunctional (or functional) behavior. This is similar to positive psychology's proposition to account for both positive and negative human experiences.

Regarding mood disorders, Hirschfeld (2001) highlighted how the traditional dichotomous distinction between depression and mania regarding mood disorder diagnoses contributed to problematic misdiagnoses. Additionally, the use of a 'bipolar spectrum' for mood disorders (or in other words a conceptual severity continuum between mania and depression) would increase the accuracy of diagnosis and treatment. Furthermore regarding bipolar spectrums, Angst (2007) indicated "the two-dimensional bipolar spectrum described here comprises a continuum of severity from normal to psychotic and a continuum from depression, via three bipolar subgroups to mania" (p. 189). In preliminary summary, these studies suggested that improved measurement, conceptualization, diagnosis, and treatment might be obtained through the use of continuum (or spectrum) between traditionally dichotomous, categorical variables regarding mental health disorders. These hypotheses are supported by statistical theory of measurement.

Sprinthall (2007) identifies a progression of increasingly higher order scales of measurement and associated data: nominal scale/categorical data, ordinal scale/ranked data, and interval scale/measurement data. Specifically, regarding the nominal scale, "of all the scales, it contains the least information, since no assumptions need be made concerning the relationship among measures ... the concept of quality cannot be expressed [either], only identity versus nonidentity [in a group or not]" (p. 202). Additionally, "with nominal data, there are *no shades of gray* [writer added emphasis]; an observer either has the trait or not (Agresti, 1990)" (p. 366).

A provided example of a bi-modal nominal categorization is male or female. Regarding the ordinal scale, "often it is not sufficient to know merely that X or Y [or Z in a tri-modal categorization] is present ... we [may] wish to find out how much X or how much Y ... by providing for rank ordering of observations in a given category. The main thing to remember about ordinal scaling is that it provides information regarding greater than or less than, but it does not tell how much greater or how much less" (p. 203). A provided example of ordinal scaling is socioeconomic status. Regarding the interval scale, "a still further refinement ... we get information not only as to greater-than-or-less than status but also as to how much greater than or how much less than ... as a result, inferences made from interval data can be broader and more meaningful that can those from either nominal or ordinal data ... in general the more information contained in a given score, the more meaningful are any conclusions that are based on that score" (p. 204).

Additionally, an important concept regarding the interval scale is that it has an *arbitrary zero point* as opposed to the absolute zero associated with the higher order ratio scale. A provided example of interval scaling is standardized IQ tests and their association with the normal curve and standard deviations.

In summary, the research outlined above suggests that improved diagnosis and treatment (and understanding of human experiences in general) can be achieved by increased sophistication in measurement. Additionally, the systematic progression in theory of measurement (i.e., nominal scale: categorical data, ordinal scale: ranked data, and interval scale: measurement data) appears analogous to the state-trait developmental structures suggested in this study: bi-modal (categorical), zero-point tri-modal

(categorical), bi-polar continuum (ordinal), and Jungian continuum (interval), *and* the

Perry's scheme of development: dualism (bi-modal, categorical), early multiplicity (zero-

point tri-modal, categorical), late multiplicity (bi-polar continuum, ordinal), and

relativism (Jungian continuum, interval).

If there is a relationship between states and traits, what are the benefits?

Regarding the general relationship between states and traits, Kashdan and Steger (2007)

found positive traits influence states (and corresponding everyday behavior), but did not

find that daily behavior influenced the traits. This study highlighted the exploration of a

potential bidirectional causal relationship between states and traits. Regarding overall

health, Pressman and Cohen (2005) found that positive affect acted both as a state and a

trait. Additionally, positive affect whether state or trait facilitated improved overall

health. This study suggested that there may be a relationship between states and traits (as

opposed to being dichotomous) and highlighted how positive affect is beneficial to

physical and possibly mental health. Regarding speech communication, Vinson and

Roberts (1994), developed an instrument to improve the measurement of communication

apprehension by using a 'trait-state continuum' which utilized a continuum between trait-

like and generalized-context (states). This instrument aimed to improve overall

communication ability. In summary, similar to research on other higher order structures,

a state-trait continuum may increase the overall understanding of the bidirectional nature

between states and traits. Additionally, a continuous structure may increase the ability to

accurately measure and increase both positive states and traits.

If it is possible to construct various structure(s) between states and traits, what

does the research suggest are the benefits and issues with each? Regarding the Perry

scheme's concept of 'retreat,' Wankat and Oreovicz (1993) stated, "retreat is regression to earlier positions. The most dramatic such retreat is movement back to position 3 or 2 [dualism] when the complexities of relativism and multiplicity become overwhelming. Retreat into dualism requires an enemy" (p. 276). Conversely, Flache and Torenvlied (2001) concluded "our analyses show[ed] that unstable, non-linear behavior in opinion formation and collective decision-making will always depart from a situation of persistent polarization [dualistic]" (p. 22). If put together these research lines suggest a dangerous feed-back loop between dualism and extreme behavior or conflict.

Similarly, Aaron Beck developed 'cognitive therapy' which included the theory and corresponding treatment modalities for what he called 'cognitive distortions.' Specifically, problematic thoughts, feelings, and behaviors (issues in multiple domains) were produced from 'dichotomous, all-or-nothing, catastrophizing, and disqualifying-the-positive' cognitive schemas (Beck, 1995). Furthermore regarding 'constructivist-developmental teaching guidelines' for counselor preparation, McAuliffe (2011), suggested to "question categorical thinking." Specifically, "in categorical thinking, there is no room for shades of gray and continua. Opposites abound: 'enemy' or 'friend,' 'believer' or 'infidel,' 'good theory' or 'bad theory,' behaviorist' or 'nonbehaviorist.' Rarely do such absolute dichotomies represent the complexity of phenomenon" (p. 43).

Widiger, Livesley, and Clark (2009) in response to the existing problems with the classification of personality disorders attempted to integrate several personality inventories: Dimensional Assessment of Personality Pathology—Basic Questionnaire, DAPP-BQ; NEO-PI; Five-factors model, FFM; and the Schedule for Non-adaptive and Adaptive Personality, SNAP. Samuel (2011) suggested that a 'common ground' among

alternative models for use in the DSM-V would likely include the structure of bipolar continua.

Regarding the PANAS (Watson, Clark, & Tellegen, 1988), however, there have been polarized opinions regarding the most effective structure for this (and other) instruments. At one pole, Russell and James (1999) statistically found "bipolarity [i.e., a bipolar-continuum] provides a parsimonious fit to existing data" (p. 3). On the contrary, Larsen, McGraw, and Cacioppo (2001) found that because individuals have the ability to feel happy and sad states at the same time (which goes against the traditional definition of bi-polarity or a bi-polar continuum). Consequently, the "results suggest that although affective experience may typically be bipolar, the underlying processes, and occasionally the resulting experience of emotion, are better characterized as bivariate [dichotomous and categorical]" (p. 684).

Regarding differentiating, bipolar-continua and bi-variate (dichotomous) measures for the exploration of states and beliefs [traits], Cacioppo, Gardner, and Bertson (1997) made some strong statements. First, they explained how the bipolar-continuum [e.g., the opposite of optimistic (a positive attitude) was pessimistic (negative)] was ubiquitous and functioned as the default structure for such comparisons. "The assumption that positive and negative evaluative processes are reciprocally controlled and interchangeable was an important starting point that simplified the measurement of attitudes: The endpoints could be placed on a single (bipolar) continuum, and attitudes could be measured along this continuum" (p. 5). To highlight this understanding they used binaural sound perception as an analogy. Specifically, "attitudes [states] have thus been conceptualized (and measured) as being analogous to the position of a balance knob

on an audio stereo, with very negative and very positive substituted for the left speaker and right speaker [respectively]" (p. 5). Secondly, because of the possible issues with bipolar-continua (i.e., positive and negative continua), Capioppo et al. (1997) suggested a model that only utilized a bipolar-continuum structure, but moved towards their composite model that incorporated bipolar continua and bi-variate structures together in the same model, like their Evaluative Space Model.

Furthermore they cited an example from cognitive dissonance research to illustrate an issue with bi-polar continua. According to Brehm (1956) when deciding between increasingly similarly attractive objects, there is a natural tendency to exaggerate positive features of the object chosen and exaggerate the negative features of the non-chosen. In other words the nature of positive and negative (bipolar continua) created a bias towards the positive.

The research of Capioppo et al. (1997) clearly suggested the default use of bipolar continua to facilitate the understanding of state and traits, but the inclusion of a bi-variate structure to facilitate increased accuracy of measurement because of the issue of bias with the use of bi-polar continua (continua with positive on one side and negative on the other). Additionally, they utilize two analogies from other areas of specialty: binaural hearing from the area of human perception and cognitive dissonance from the field of psychology. In order to accommodate for the possible inadequacies of the DSM, Samuel (2011) suggested the DSM-V assess personality and personality disorders using bipolar constructs. In defining bipolar structures, he highlighted its difference from unipolar measures. Additionally, he highlighted how some bipolar structures have one positive pole and one negative pole, but that this distinction is not the only continuous structure.

As an example of a non-positive/negative bipolar continuum, introversion and extraversion was offered. With introversion and extraversion, both poles are positive. Specifically, "the inclusion of bipolar traits, such as a continuum ranging from introversion to extraversion, would hold numerous advantages for a dimensional model … [the] benefits include a strong foundation of existing validity research, comprehensive coverage of personality pathology, and the ability to provide useful information about all individuals" (p. 390).

Related to this study, extraversion and introversion is the first scale on the MBTI. Additionally, all four MBTI subscales [extraversion/introversion (E-I), sensing/intuition (S-N), thinking/feeling (T-F), and judging/perception (J-P)] are potentially positive/positive continua or (for this study was called) 'Jungian-continua.' In summary, researchers appear to be suggesting the inclusion of dichotomous (bi-modal), zero-point (categorical tri-modal), bi-polar continuum, and Jungian-continuum structures to a comprehensive state-trait continuum.

This small sample of research on the state-trait continuum that has been reviewed highlights the implementation of state-trait continuum structures (and higher order measurement structures in general) in numerous areas of study to improve measurement, diagnosis, and treatment of human conditions. Specifically, regarding this study, prior research has highlighted that the traditional dichotomy between states and traits is no longer the standard. On the contrary, the use of continua may be the standard or at least on the rise. Specifically, many researchers have suggested the benefits of using continua regarding varying diagnostic categories in the DSM-V.

Regarding using dichotomous structures alone, the research suggested issues on multiple domains (e.g., thoughts, feelings, and behaviors) and a possible feedback loop of conflict in these domains. Regarding a zero-point tri-modal categorical structure alone, the research demonstrates examples of its use and how it may naturally develop after a bi-modal structure. Ultimately however, a tri-modal structure is categorical, a lower order measurement, and severely limited in its capacity to illuminate relationships.

Regarding bipolar-continuum structures (positive on one side and negative on the other) alone, research indicates that despite possibly being the new standard it also has significant issues with positive bias. Consequently, an alternate suggestion was the use of a Jungian continuum (a positive/positive continuum) as exampled by the introversion-extraversion scale formulated by Jung and used in the MBTI. Despite the possibility that this structure may approximate and have the measurement benefits of the normal curve, the Jungian-continuum is largely theoretical. Interestingly, positive psychology would contribute to the exploration of state-trait continuum by modifying the work of arguably one of the earliest positive psychologists, Jung (Lopez, 2009) and his use of the positive/positive, Jungian-dichotomy. Ultimately, for positive psychology's state-trait continuum to reflect the research, it could benefit from incorporating dichotomous, zero-point tri-modal, bipolar-continuum, and Jungian-continuum structures. The superimposing of multiple structures is supported by the data.

Research Related to the MBTI and LEP

Because this study collaboratively utilized the MBTI (a trait instrument) and LEP (a state instrument) in order to explore the state-trait continuum, this section will explore research related to these instruments.

<u>MBTI Research</u>

First, specific research about the MBTI only will be presented. As the previous

section highlighted the trend to move away from dichotomous measures and towards

continua (or continuous data), research regarding the MBTI has followed a similar trend.

Harvey and Thomas (1996) stated "although the levels of test-retest reliability obtained

using the [MBTI] continuous preference scores have generally been quite respectable, the

levels of instability in the categorical type assignments have presented an inviting target

for critics of the MBTI. For example, Pittenger (1993) noted that because 'Jung and

Briggs and Myers conceived of personality as an invariant' (p. 471), 'if each of the 16

types is to represent a very different personality trait, it is hard to reconcile a test that

allows individuals to make radical shifts in their type (p. 472)" (p. 18). This study

suggested that the MBTI provided better accuracy when using its continuous preference

scoring as opposed to its traditional categorical (dichotomous) scoring.

Similarly, McCrae and Costa (1989) in comparing the MBTI to their instrument

the NEO personality inventory (originally named the Neuroticism-Extraversion-

Openness Inventory; NEO-PI; Costa & McCrae, 1985), questioned the validity of the

MBTI because it had not demonstrated evidence that it assigned individuals into 1 of 16

qualitatively different types. "In the absence of evidence for the typology, the instrument

becomes merely a series of scales whose information is reduced, rather than increased, by

dichotomous classifications, the characteristics that set it apart from countless other

personality instruments vanish, and it must be evaluated and used a more traditional

context" (p. 20). Consequently, in order to compare the NEO-PI with the MBTI, they

utilized a method from the manual of converting the 4 dichotomous MBTI scales into continuous scores (pp. 25-26).

McCrae and Costa (1989) also questioned the validity of dichotomizing preference scores. They referenced Jung, the theorist behind the MBTI preference dichotomies and wrote that Jung himself in some of his writings admitted "that there are intermediate positions between pure introversion and pure extraversion, in which individuals are 'influenced as much from within as from without' (1923, 1971, p. 516). The authors of the MBTI, however, have adopted the interpretation that types are mutually exclusive groups of people, and that the cutting point between them is not arbitrary, but a true zero point" (p. 19).

McCrae and Costa (1989) again highlighted the benefits for MBTI's typical dichotomous traits being converted into continuous traits. Furthermore, they highlighted the question of what is the meaning of the zero-point of an MBTI or Jungian continuum? The question of zero-point seems analogous to the statistical concept of mean on the normal (or Gaussian) curve.

Specifically, according to Sprinthall (2007), "if the mean and the standard deviation are the heart and soul of descriptive statistics, then the normal curve is its lifeblood. So many distributions of measures in the social sciences conform to the normal curve. In the normal curve, most of the scores cluster around the middle of the distribution (where the curve is highest) … as the distance from the middle increases, in either direction, there are fewer and fewer scores, … is symmetrical, … is thus perfectly balanced, … [and] the mean, median, and mode-fall precisely [at] the same point the exact center or midpoint [zero-point] of the distribution" (p. 73).

Additionally, regarding bi-polar continua, the normal curve becomes increasing positively deviant in one direction and proportionately negatively deviant in the other. In this way, because the MBTI is a social science measure (measures human characteristics, personality traits) it follows that its scales might approximate the standard deviations of the standard curve. Incidentally, the MBTI average percentages when broken down by clarity preference (continuous categories) are: slight and moderate, 65%; clear, 25%; and very clear, 10% (Myers et al., 1998, p. 122; see Appendix D for per scale percentages) as compared to the normal curve: first deviation 68%, second deviation 27%, and third deviation 5%. This set of research strongly suggests that the MBTI may have as its underlying structure the normal curve.

If this research study is attempting to establish the underlying structure of the MBTI and the LEP in order to explore the state-trait continuum, the normal curve appears to be a promising underlying structure. Interestingly, the writers of the NEO-PI (Costa & McCrae, 1989; which used the Big Five traits model as its basis) who were cited above critiquing the MBTI eventually also received criticism from the research world. Costa and McCrae (2006) responded to the critique as follows, "although B. W. Roberts, K. W. Walton, and W. Viechtbauer (2006) depicted the present authors as proponents of the immutability of traits, in fact we have always acknowledged the possibility of change, and we are pleased that the results of their meta-analysis are consistent with our conclusions about modest change after age 30" (p. 26).

These studies indicated that although both the MBTI and NEO initially defined themselves as strict trait instruments, ongoing research clarified the relative instability (or non-immutable stability) of most trait and personality instruments (including the MBTI

and NEO). Additionally, as with other dichotomous structures, the varying benefits of measurement structure (dichotomous, zero-point tri-modal, and Jungian continuum) were raised. Regarding structure, it was suggested that the MBTI clarity preferences (Jungian or positive/positive continuum) may approximate the normal curve.

Research on the LEP and MBTI Together

Secondly, research that used the LEP and MBTI together will be presented. Moore (1983; creator of the LEP) labeled these instruments as 'stage' (Perry and/or LEP) and 'style' (MBTI), as opposed to state and trait respectively when studying learning characteristics. Specifically, "despite the conceptual links between the cognitive-developmental framework [Perry, stage] and learning style models [MBTI, style], little research has been done examining possible connections" (p. 9).

McAuliffe and Eriksen (1999) conceptually compared and contrasted the MBTI and Perry regarding the constructivist cognitive development of students. Specifically, "like stage [Perry] inclination, personality styles [MBTI] should be recognized as constructed approximations of human experience and should be arrayed on a continuum rather than being reified or totalized in all-or-nothing terms" (p. 275). Additionally regarding similarities, they "share a constructivist dimension in that each calls attention to the lenses that humans use to create experience. Both stage and style theories are also similar in that they concern themselves with individuals' consistent tendencies across life contexts, either in *how* the person knows (i.e. stage) or in *what* (environments, people interests, values) he or she prefers (i.e., style)" (p. 275). McAuliffe and Eriksen (1999) went on to differentiate the MBTI and the LEP using the following dichotomies (respectively): capacities vs. preferences, long-term vs. mutable, and derived from nature

vs. nurture. Ultimately, despite clearly expressing the potential similarities (continuum) between the MBTI and the LEP, style and stage became different steps on their constructivist development assessment procedure (i.e., The Context-Phase-Stage-Style Model).

Other studies have used the MBTI and LEP together, but also tend to highlight how the two instruments measure dichotomous, non-continuous constructs. Specifically, Felder and Brent (2004), Felder and Brent (2005), and Wankat (1999) all used both the MBTI and Perry (as well as other measures), but as separate factors to assess engineering students. Kooyman et al. (2010) used the MBTI and Perry (as well as other measures) as separate measures of learning styles in order that teachers might provide better instruction to their students.

Moore (1983) however studied the overlaps between the MBTI and the Perry scheme during the development of the LEP. Specifically, "finally, the issue of stage/style [LEP/MBTI] interaction in cognitive development needs to be raised again. The two areas seem to be a distinct phenomena, yet a careful analysis of their implication for learning characteristics show areas of obvious overlap between the two frameworks" (p. 12). To substantiate this claim, Moore (1983) highlighted "the apparent tendency for Intuitives to be overrepresented at position 4 [late multiplicity] while Sensors are under-represented ... could be that there is sufficient overlap in the conceptual descriptions of the two models ... that the two models are confounded. The question then becomes: how can this confounding be explored? First, it is plausible that style modifies the rate and ways in which one would progress in cognitive development terms" (p. 12). "Second, given that people use all four Myers-Briggs functions to varying extents and in specific

situations, how does type development in the sense of being able to use all four functions effectively (if not necessarily equally) relate to Perry's notion of the contextually relativistic reasoner? If one assumes that the relativistic person is a more effective chooser of styles/functions appropriate to a give situation, how can that be measured? Can problems be designed to see if a person stays in style or is able to be fluid across functions" (p. 13)?

Regarding the summary of MBTI studies, there appeared to be a theme of encouraging the MBTI to measure its scales along a continuous (as opposed to categorical) structure. Regarding the summary of LEP and MBTI together studies, although they have been described as stage and style as opposed to state and trait (respectively) when studying learning characteristics, there appears to be conceptual and structural framework similarities that encouraged the continued study of their relationship.

Overall Summary of Research Presented in this Chapter

The research reviewed suggests that states and traits are conceptually related and not solely dichotomous as traditionally believed. First, the key factor that both unifies and differentiates state and trait is time. This understanding facilitated definitions that are used in this study that were provided in Chapter One: *state*: that which appears to last a shorter duration, tends to take a shorter time to develop, and is associated with faster acting domains (or organic systems); and *trait*: that which appears to last a longer duration, tends to take a longer time to develop, and is associated with slower acting domains (or organic systems).

The dichotomous distinction between states and traits has been found less fitting than higher order, continuous structures. This understanding facilitated this study's definition of *continuum*: a higher order measurement structure compared to a dichotomous (bi-modal, bi-variate, dualistic, nominal, categorical, polarized, black or white, and all or nothing) structure. Third, drawn from the research (most notably the fight/flight studies, benefits/deficits of instrument structures, and statistical measurement theory), a consistent developmental pattern emerged.

This understanding facilitated this study's definition of *state-trait continuum*: a conceptualization of progressive, systematic development of human experience across domains of varying degrees of duration. Specifically, this developmental progression contains the following structures (from lower to higher order): 'bi-modal' (categorical), 'zero-point tri-modal' (categorical), bi-polar (positive/negative, ordinal) continuum, and Jungian (positive/positive, interval) continuum. In this way the developmental pattern predictably changes, but the speed of development is contingent with the overall speed of the domain or organic system. This is conceptually similar to Kegan's (1994) definition of "developmentalism ... the idea that people or organic systems evolve through qualitatively different eras of increasing complexity according to regular principles of stability and change" (pp. 198-199). Accordingly, the state-trait continuum developmental pattern could be analogously applied or generalized to widely varying subjects (domains or organic systems): thoughts, feelings, behaviors, beliefs, decision-making, inter-domain relations (e.g., mind-body dichotomy), social skills, interpersonal relationships, institutional systems (training and supervision), political structures; potentially any dichotomous variable. Many fields of study have utilized higher order

structures (i.e., continua) to obtain richer understanding from their measurements between previous dichotomous variables.

The above defined state-trait continuum and its progression of structures was used in this study to examine similar relationships between the LEP and MBTI (a state and a trait instrument, respectively). Research suggested underlying structural similarities between the two. This study suggests that the underlying structure is a dichotomous structure and accordingly would follow the above-defined progression. Specifically, it is hypothesized that Perry scheme (LEP) positions (dualism, early multiplicity, late multiplicity, and relativism) will superimpose over the MBTI clarity preferences (very clear, clear, moderate, and slight), and superimpose over the state-trait structures as follows: dualism (position 2) will superimpose with very clear, and 'bi-modal' (categorical); early multiplicity (position 3) with slight, and 'zero-point tri-modal' (categorical); late multiplicity with moderate, and 'bi-polar continuum' (positive/negative, ordinal); and relativism with clear, and the 'Jungian continuum' (positive/positive, interval).

Interestingly, the LEP's continuous measure is the "cognitive complexity index." Regarding "basic counselor skills training," Duys and Hedstrom (2000) stated "levels of cognitive complexity are assumed to be directly related to the number of constructs a person [counselor] can cognitively hold about another person at one time" (p. 10). In this way, this study's state-trait continuum (which hypothesizes many superimposed constructs) may facilitate improved counselor development. If these correspondences are found in this study, it would suggest an underlying structural similarity between state and trait, other dichotomous variables in general, the LEP (Perry scheme) and MBTI, and

between developmental theory and personality theory in general (as these instruments easily generalize to other theories in their respective area of study). In the instrumentation section of the next chapter, similarities between this study's 'state-trait continuum' structures and LEP and MBTI structures was highlighted to support the above-mentioned hypothetic structural overlaps.

CHAPTER THREE: METHODOLOGY

Chapter 3 describes the methodology that was used in the study. The chapter is organized as follows: research design, research questions and hypotheses, participants, instrumentation, procedure, data analysis, limitations, strengths of proposed study, and summary of methodology.

Research Design

This study utilized a quantitative, non-experimental, survey-based research design (Mertler & Vanatta, 2005; Rossi, Wright, & Anderson, 1983; Sprinthall, 2007). First, this research study was quantitative (as opposed to qualitative) because it was the mathematical relationships between Learning Environment Preferences' (LEP) cognitive complexity index data and Myers-Briggs Type Indicator (MBTI) preference dichotomies that were explored. Second, this research was non-experimental (as opposed to true experimental) because participants placed themselves in various levels of the independent variable based on their performance of the MBTI (research question 1) and the LEP (research question 2). Finally, this research was survey-based because it used two pre-made self-administered survey-style instruments (i.e., the LEP and MBTI).

Research Questions and Hypotheses

The research questions and corresponding hypotheses in this study were as follows:

Research Question 1: Which combination of the MBTI preference dichotomies (E-I, S-N, T-F, J-P) best predicts LEP's cognitive complexity index score?

H_1: MBTI preference combinations will reliably predict LEP's cognitive complexity index score.

Research Question 2: To what extent does LEP's cognitive complexity index score predict the overall MBTI preference clarity category (very clear, clear, moderate, and slight)?

H_2: LEP's cognitive complexity index score will significantly predict the overall MBTI preference clarity category.

Participants

A minimum of 85 undergraduate students were sought to participate in this study. Because the LEP and the MBTI are appropriate instruments to be used with college aged students, the population of undergraduate students was chosen for this study (Moore, 1989b; Myers et al, 1998). Only individuals who were currently enrolled undergraduate students participated in this study. The population of undergraduate students was selected due to shared benefits for students and instructors. The LEP and MBTI are instruments that provide valuable information to students and instructors. Specifically, because the LEP provides state information regarding intellectual and ethical developmental according to the Perry scheme, it is referenced in courses studying human development, psychological theories, ethics, and counseling skills. Because the MBTI provides trait/type/personality information, it is referenced in courses studying personality traits, clinical supervision, and career counseling. It was anticipated that course instructors would be willing to introduce this research opportunity to their students in order to use the LEP and MBTI results as teaching tools in their classes. Instructors were asked to provide extra credit as an incentive to the students who participate. Students may have also be motivated to participate due to receiving information about themselves from their LEP and MBTI results. Students were free however to refuse participation. Specific

efforts to maintain the anonymity and confidentiality of participants (from the researcher) are detailed in the procedure section. The minimum number of undergraduate students required to find statistical significance in the two data analyses was 85 (G*Power, 3.1; Faul, Erdfelder, Buchner, & Lang, 2009). Specific power information can be found in the data analyses section.

Instrumentation

The three instruments used in this study were the Learning Environment Preferences (LEP), the Myers-Briggs Type Indicator (Form M; MBTI), and a participant demographic sheet. Only the scores on the LEP and MBTI were used for data analysis. Data collected on the participant demographic sheet was used to describe the participants.

Rationale for Instrument Selection

The predominant reason for choosing the LEP for this study was because it measures the Perry scheme. The developmental positions of the Perry (1981) scheme can be easily translated to several other prominent adult developmental theories (i.e., King-Kitchener Model of Reflective Judgment, Belenky's Women's Ways of Knowing, and Baxter-Magolda's Model of Epistmological Development; Felder & Brent, 2005). In this way, the LEP (using the Perry Scheme) can be easily generalized to many adult developmental theories and research. A secondary reason to choose the LEP is because Moore (the creator of the LEP) suggested it be compared with the MBTI in order to explore "style" (associated with trait and the MBTI) and "cognitive development" (associated with state and the LEP; 1989b, p. 511). The predominant reason for choosing the MBTI was because "the Myers-Briggs Type Indicator (MBTI) instrument is one of the most widely used personality [trait] assessments in the world" (Schaubhut, Herk, &

Thompson, 2009, p. 4). An additional reasoning for pairing the LEP and MBTI to explore the state-trait continuum, is due to possible similarities in their underlying structures. Regarding the LEP, "Perry describes the entire progression [continuum] across the first five positions as 'successive modifications [development] of right-wrong dualism in attempting to account for diversity in human opinion, experience and 'truth' (Perry, 1974, p. 3)" (Moore, 2001, p. 3). "The MBTI differs from most other personality [trait] instruments in that the theory upon which it is based postulates dichotomies" (Myers et al., 1998, p. 4). Additionally, "the [MBTI] type descriptions are designed to reflect a theory that includes a model of development that continues throughout the lifespan" (Myers et al., 1998, pg. 5). In this way, both the LEP and MBTI were seen as instruments measuring an individual's development from and between dichotomous or dualistic underlying structures. Both the LEP and MBTI reveal developmental connections, relationships, progressions, and continua between their respective opposite theoretical poles. The continua (between poles) established in the LEP and MBTI appear directly analogous to the aspirations of the state-trait continuum and this study. A function of this study was to reveal developmental connections, relationships, progressions, or continua between the traditionally viewed dichotomous or dualistic variables of state and trait. Ways in which the LEP (a state or state-like instrument), the MBTI (a trait or trait-like instrument), and possible continua structures [bi-modal (or bipolar dichotomy), zero-point (tri-modal), bipolar continuum, and Jungian continuum] relate were highlighted in the following specific instrument sections.

Learning Environment Preferences

The Learning Environment Preferences (LEP; Moore, 1989a) is a copyrighted

instrument used to determine one's Perry intellectual and ethical developmental stage

(also called the Perry scheme; Perry, 1981). The categorical Perry positions used in the

LEP are dualism (position 2), early multiplicity (3), late multiplicity (4), and relativism

(5). "Empirically, position 1 is ignored because of a lack of evidence for its existence in

college samples (Mentkowski et al., 1983) and because it was largely hypothetical even

in the original study (Perry, 1970)" (Moore, 1989b, p. 506). Conceptually, "Perry

describes the entire progression across the first five positions as 'successive

modifications of right-wrong dualism in attempting to account for diversity in human

opinion, experience and 'truth' (Perry, 1974, p. 3)" (Moore, 2001, p. 3). "As Perry makes

clear even in the title of his book (1998, *Forms of intellectual and ethical development in*

the college years: A scheme), one's task in life is finally understood fully as intellectual

and ethical--a question of judgments and meaning-making in both academic and personal

contexts" (Moore, 2001, p. 4).

Regarding categorical LEP scoring, "position 2 [(dualism), represents how]

different perspectives and beliefs are now acknowledged but are simply wrong. Thinking

in this position is characterized by *dichotomies and dualisms* [writer added emphasis]

(i.e., We-Right-Good vs. They-Wrong-Bad or some variation) [similar to bi-modal

dichotomy]. The world thus consists essentially of two boxes—rights and wrongs—and

there is generally little trouble distinguishing one from the other" (Moore, 2001, p. 3).

"Position 3 [early multiplicity] represents the first acknowledgement of legitimate

uncertainty in the world; instead of two boxes or categories, right and wrong, there are

now three; right, wrong, and 'not yet known' [similar to zero-point, tri-modal structure]

Thus, the knowledge that is not yet known is knowable, and will be determined at some

point in the future" (Moore, 2001, p. 3). "In position 4 [late multiplicity], the 'not yet

known' notion of position 3 often becomes a new certainty of 'we'll never know for

sure,' and thus what is most important is one's own thinking. Self-processing and a sense

of idea ownership increases, but frequently in position 4 the stance taken is that there is

no non-arbitrary basis for determining what's right (Benack, 1982) [similar to bipolar-

continuum]" (Moore, 2001, p. 3). Position 5 (relativism) "represents a fundamental

transformation of one's perspective – from a vision of the world as essentially dualistic,

with a growing number of exceptions to the rule in specific situations, to a vision of a

world as essentially relativistic and *context-bound* [writer added emphasis] with a few

right/wrong exceptions [similar to Jungian-continuum and normal curve]. The most

significant distinction between the pseudo-relativism of position 4 and the contextual

relativism of position 5 is the self-consciousness of being an active maker of meaning"

(Moore, 2001, p. 4).

Regarding continuous scoring, the LEP also produces a Cognitive Complexity

Index score on a continuous scale from 200 (stable position 2, dualism) to 500 (stable

position 5, relativism), which corresponds to the Perry positions 2 to 5. For the specific

cognitive complexity index score ranges and corresponding Perry positions, see

Appendix C. According to Moore, the cognitive complexity index score not only

represents intellectual and ethical development, but is "reflecting a more complex

composite of the person's reasoning" (Moore, 1989b, p. 506). In this way, the LEP (the

cognitive complexity index score specifically) provides data regarding an individual's

over-arching development of meaning making.

Regarding instrument properties and psychometrics, the LEP consists of "65

items across five different content domains: view of knowledge/learning, role of the instructor, role of the student/peers, classroom atmosphere/activities, and role of evaluation/grading" (Moore, 1989a, p. 5). Each item is rated on a 4-point Likert scale in terms of its significance to the person's ideal learning environment. Regarding administration, "the instrument takes most students 30-45 minutes to complete" and can "be assigned as a 'take home' task" (Moore, 1989a, p. 7). The LEP manual (Moore, 1989a) reports concurrent validity, construct validity, and reliability. Regarding concurrent validity, the LEP was compared with the Measure of Intellectual Development (MID; Moore, 1982). "In Perry's original research (1970), and in early replication studies (e.g., Clinchy & Zimmerman, 1975), interviews were used to assess students' cognition" (Moore, 1989a, p. 4). Because "interviews were impractical for use with classroom intervention studies," the MID was developed to be "the first major alternative to the interview format, a production-task measure consisting of sentence stems and semi-structured essay task" (Moore, 1989a, p. 4). "The MID and CCI [cognitive complexity index score] correlate .38 with each other, and both about the same with GPA (.36 and .34 respectively)." "Correlations in the area of .25-.35 between cognitive complexity and grades is consistent with other findings (see, for example, Mentkowski & Strait, 1983)" (Moore, 1989a, p. 10). Regarding construct validity, Moore (1989b) found Cronbach alpha coefficients for the Perry positions to be .81 (position 2), .72 (position 3), .84 (position 4), and .84 (position 5). Regarding reliability, "the Cognitive Complexity Index (CCI) showed a test-retest correlation [using a 1 week interval] of .89, suggesting a reasonable amount of stability for the measure over that period" (Moore, 1989a, p. 10).

In order to gain use or access, the "Learning Environment Preferences (LEP;

Moore, 1989a) can only be reproduced with written permission from the Center for the

Study of Intellectual Development [CSID] or one of the authors. A signed copy of this

form constitutes such permission from the Center." The LEP questionnaire and answer

sheet are provided to the researcher in .doc(x) format. In order for the LEPs to be graded,

they are sent to CSID with a fee corresponding to the number of tests. Regarding

additional potential LEP research, Moore (1989b) suggested a comparison between the

LEP and the Myers-Briggs "to see to what extent the perspectives defined in the LEP

might reflect stylistic [type-like] rather than cognitive-developmental [state-like] issues"

(p. 511).

Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator, Form M (Myers, McCaulley, Quenk, &

Hammer, 1998) will be used in this study to measure trait (i.e., type and personality)

dynamics regarding participant preferences on four Jungian dichotomies. "The Myers-

Briggs Type Indicator (MBTI) instrument is one of the most widely used personality

assessments in the world" (Schaubhut, Herk, & Thompson, 2009, p. 4). "The MBTI is

different from typical trait approaches to personality that ... define a dimension or scale

as a single trait" and "measure variation along a [uni-polar, 'amount of a trait']

continuum; instead, the Indicator [abbreviated name for the MBTI] seeks to identify a

respondent's status on either one or the other of two opposite personality categories"

(Myers et al., 1998, p. 5). "The MBTI differs from most other personality instruments in

that the theory upon which it is based postulates dichotomies [similar to LEP]" (Myers et

al., 1998, p. 4). Regarding the MBTI's overall ethical use and congruence with positive

psychology, the Myers & Briggs Foundation website (2011a) specifies to "present

psychological type as describing healthy personality differences, not psychological disorders or *fixed traits* [writer added emphasis]. Be adamant that all types are valuable: no type is better, healthier, or more desirable in any way (para. 2-3) [consistent with positive psychology]."

Regarding categorical scoring, the MBTI identifies participant preferences [similar to LEP's measurement of opinion, experience and sense of truth] on the following dichotomies: extraversion/introversion (E-I), sensing/intuition (S-N), thinking/feeling (T-F), and judging/perception (J-P). Regarding the meaning of each of the four dichotomies, the Myers & Briggs Foundation website (2011b) provides these clarifying questions. Regarding one's favorite world, "do you prefer to focus on the outer world [E] or on your own inner world [I]?" Regarding information, "do you prefer to focus on the basic information you take in [S] or do you prefer to interpret and add meaning [N]?" "When making decisions, do you prefer to first look at logic and consistency [T] or first look at the people and special circumstances [F]?" Regarding structure, "in dealing with the outside world, do you prefer to get things decided [J] or do you prefer to stay open to new information and options [P]" (para. 7-10)? Typically, each preference is summarized into a dichotomy-based or bi-modal categorization (for example, on the E-I preference dichotomy, regardless of the degree of extraversion, subjects are labeled E). For this study, each preference will not be summarized in a dichotomous or bi-modal manner. Instead, each of the four Jungian dichotomies will be transformed into continuous scores (research question 1) and categorical transformation to preferences clarity indices (i.e., slight, moderate, clear and very clear; research question 2).

Regarding continuous MBTI scoring, "when conducting correlational [or multiple regression] research with the MBTI, it is useful to treat the dichotomous preference scores as if they were continuous scales. Continuous scores are a linear transformation of preference scores, using the following convention: for E, S, T, or J preference scores, the continuous score is 100 minus the numerical portion of the preference score. For I, N, F, or P preference scores, the continuous score is 100 plus the numerical portion of the preference score" (Myers & McCaulley, 1986, p. 9; for the conversion table for preference scores and continuous scores, see Appendix B.

Regarding additionally scoring methods, the MBTI preferences clarity index accounts for "slight, moderate, clear and very clear" categorizations in either direction of a preference dichotomy (for example, very clear extraversion, clear extraversion, moderate extraversion, slight extraversion, slight introversion, moderate introversion, clear introversion, or very clear introversion). In this way, the MBTI continuous scoring method is divided into symmetric clarity categorizations. The MBTI scoring templates indicate, "if you wish to report back the respondent additional information about the clarity or his or her preference on the (E-I, S-N, T-F, or J-P) dichotomy, use the conversion table below." For the E-I dichotomy, the raw score to preference clarity conversion is as follows: 11-13, slight (s); 14-16, moderate (m); 17-19 clear (c), and 20-21, very clear (vc). For S-N: 13-15, s; 16-20, m; 21-24, c; and 25-26, vc. For T-F: 12-14, s; 15-18, m; 19-22, c; and 23-24, vc. For J-P: 11-13, s; 14-16, m; 17-20, c; and 21-22, vc. For the average percentage of respondents at each level of preference see Appendix D. Specifically, the MBTI manual provides the meaning of the clarity index categorizations.

Regarding MBTI clarity index interpretations, "respondents who report very clear

preferences ... usually agree that they hold the preferences reported by the MBTI and often most of the characteristics that accompany those preferences [similar to dualism and bi-modal dichotomy]." Regarding clear preferences, "there is a reasonable probability that the respondent holds and acts on the reported preference and many of the attitudes and skills that accompany it [description does not suggest LEP or continuum structure]." Regarding moderate preference, "the respondent may still most often agree with the description of the reported preference .... it is quite likely that such an individual makes habitual use of one or more aspects of the opposite pole of the dichotomy and may spontaneously describe such use [similar to late multiplicity and bi-polar continuum]." Regarding slight preferences, "a change of one or two questions could change the letter designation. The respondent has essentially 'split the vote.' For some people, less clear preferences reflect *discomfort and dissatisfaction* [writer added emphasis] in using both domains of the dichotomy [similar to early multiplicity and zero-point, tri-modal structure]. For example, a slight T-F preference may be associated with a report of trouble in knowing whether 'to follow my head or my heart.'" "Social demands can also provide different pressures for men and women on the T-F dichotomy, men are encouraged more toward Thinking activities and women toward Feeling activities" (Myers et al., 1998, p. 122).

Regarding interpretation concerns for the MBTI continuous and clarity preferences scoring, "interpreters and respondents who do not adequately understand type theory and the MBTI will sometimes interpret less clarity as advantageous, interpreting the 'splitting of votes' as indicating good command of both domains. Such an interpretation is theoretically unsound in an approach that emphasizes the adaptive

advantages of specialization of mental processes. In addition, there are no research data available that support a notion that 'equality' of preference has advantages" [the present study suggests that 'equality,' early multiplicity, or zero-point tri-modal structure may result in less conflict the dualism] (Myers et al., 1998, p. 122). Additionally, "the type-trait distinction leads to quite different meanings for the score of trait instruments and MBTI preference clarity indexes. For example, a person with a high score on ... a trait instrument is seen as having more Extraversion [for example] than a person with a low score on that scale, and a person with a low score on the scale may be viewed as having a deficit of the identified personality trait of Extraversion" (Myers et al., 1998, pg. 5). "Quantitative interpretation of MBTI results as an indication that a respondent has 'more' or 'less' of a preference is incorrect ... unlike numerical scores on trait instruments that are designed to reflect an 'amount' of the trait being measured, the MBTI preference clarity index (pci) is designed to show only *how sure* [writer added emphasis] the respondent is that she or he prefers one pole of the dichotomy over its opposite" (Myers et al., 1998, p. 121). Consequently, "the most frequent error that occurs regarding the numerical portion of MBTI results is assuming that clarity of preference implies excellence; it is incorrect to assume that a person with a preference clarity index of N 30 has a better command of Intuition than a person with N 15. A larger number [or greater clarity] simply means that the respondent, when forced to choose, is more clear about what he or she prefers. While it frequently happens (and it is reasonable to expect) that those who report clear preferences (a) exercise them more and thus (b) are more likely to have developed the skills associated with those preferences and, further, that they (c) are more likely to develop the traits and habits associated with exercise of those skills, this

sequence may have been interrupted in any given individual. For example, a person may answer the Indicator to reflect a very clear preference for Thinking as a way of making decisions. However, for *unknown reasons* [writer added emphasis], his or her actual decision-making may vacillate unpredictably and inappropriately between Thinking and Feeling, perhaps resulting in [or a product of] generally poor decision making [or dualistic overcompensation]. Another person with the same very clear preference for Thinking may use this preferred process to make generally consistent and satisfying decisions [possibly corresponding to higher developmental level]. The preference clarity index for each of these individuals *by itself* [writer added emphasis] does not permit us to determine each individual's inadequacy or excellence in using the Thinking function" (Myers et al., 1998, p. 121).

Regarding MBTI's stance on development, "the type descriptions are designed to reflect a theory that includes a model of development that continues throughout the lifespan [despite Harvey & Thompson's (1996) critique]. As a result, specific hypotheses relevant to different ages and stages of life [developmental level] can be made and tested empirically. For example, the theory predicts that younger persons are generally less clear and consistent in their preferences than are mature individuals" (Myers et al., 1998, pg. 5). "In youth and adulthood, the task is to develop the first (leading, or dominant) and the second (auxiliary) functions. The theory assumes that these innate, natural functions are best suited to helping a person find a comfortable and effective place in the world – the task of youth and adulthood. 'Specializing' [similar to dualism] by devoting a great deal of energy to one's dominant and auxiliary functions is therefore appropriate during the first half of life. During midlife, people appear to be naturally motivated toward

completing their personalities through gradually adding the previously neglected tertiary and inferior functions to the sphere of operation. In the second half of life, it is appropriate to be a 'generalist' [similar to multiplicity] rather than a specialist. Development of this kind allows individuals to add new perspectives and experiences that were previously not very fulfilling to them" (Myers et al., 1998, p. 27). "A very few exceptional persons may reach a stage of development at which they can use each function relatively easily as the situation requires [context-bound, similar to relativism]. For most people, however, striving for a comfortable and effective expression of the four mental functions is an interesting and challenging life-long process, with no expectation that a person will arrive at a predetermined level of development" (Myers et al., 1998, p. 28). "However, this does not involve a change in a person's type. Type theory assumes that types do not change over the life span. Rather, the *expression of type* [writer added emphasis] may vary in accordance with different life circumstances" (Myers et al., 1998, p. 27).

Regarding instrument properties and psychometrics, "Form M is now the standard form" and "contains the newest items, the most precise scoring procedure, and the most current standardization samples to produce scoring weights" (Myers et al., 1998, p.106). The MBTI consists of 93 forced-choice, self-report items (e.g., "Does following a schedule: a) appeal to you or b) cramp you"). A total of 21 items relate to E-I, 26 S-N, 24 T-F, and 22 J-P. The MBTI, Form M takes approximately 15-25 minutes to complete. Regarding internal consistency, the MBTI demonstrated split-half reliability correlations for the four scales that ranged from .89 to .94. Regarding reliability, the MBTI demonstrated test-retest correlations (using a 4 week interval) for the E-I scale ranging

from .93 to .95; S-N, .89 to .97; T-F, .83 to .94; and J-P, .90 to .95. Regarding validity, the MBTI manual reviewed several factoral analyses of the theoretical structure of this instrument. "In sum, when the exploratory and confirmatory factor analytic results are viewed together, there is strong support for the construct validity of the MBTI. Several large-sample, carefully conducted exploratory studies produced 'text-book' four-factor structures that almost exactly matched the hypothesized pattern of loadings (Harvey, 1996)" (Myers et al., 1998, p. 173). Also regarding validity, "correlations of MBTI continuous score have their limitations as evidence for construct validity. They report only the four preference scales one at a time and do not show the 16 types as dynamic entities. Correlations also have the problem of confounding direction and clarity of preference (Myers et al., 1998, p. 173). Although the MBTI scales has been correlated with numerous other personality instruments (i.e., 16 Personality Factors Questionnaire, Millon Index of Personality Styles, California Psychological Inventory, the NEO-PI, FIRO-B, and many others), the resulting correlations are difficult to summarize or use to draw conclusions because the various instruments use widely differing theoretical structures and corresponding scale titles. In summary however, "correlations of the four preferences scales with a wide variety of scales from other instruments support the predictions of type theory regarding the meaning of and the behaviors believed to be associated with the four dichotomies" (Myers et al., 1998, p. 219). However when the MBTI was correlated with the Jungian Type Survey (JTS, Wheelwright, Wheelwright, & Buehler, 1964), an independently developed instrument measuring the same scales (E, I, S, N, T, F; the JTS has no scale comparable to J-P), the correlations between the two instruments are as follows: E .63, I .66, S .54, N .47, T .33, and F .23. "The two

instruments appear to be tapping the same constructs" (Myers et al., 1998, p. 184).

Participant Demographic Sheet

The Participant Demographic Sheet (see Appendix A) will be used to collect demographic information (i.e., age, gender, and race/ethnicity). This information will be presented in the final results to describe the sample from which the measured/analyzed data (i.e., the LEP's cognitive complexity index score and MBTI categorical and continuous data) were collected. Demographic information will not be used for data analysis.

Procedure

Prior to data collection, I submitted the research proposal, using an exempt application, to Darden College of Education's Human Subjects Review Board. A research exemption was requested based on using procedures that protect the anonymity and confidentiality of participants. In this procedure, participant identity was known only by the participant's class instructor. Upon receiving approval, data collection commenced. Before deciding to contribute, potential participants were informed by their instructors about the general parameters of the study: participant anonymity and confidentiality was maintained, this was a take-home pencil and paper study, participation required approximately one to one and a half hours, participants may receive class extra credit, and participants received a copy of their MBTI and LEP results. Upon agreement, participants received a premade packet containing the following: consent form, demographic sheet, LEP (separate question and answer sheet), MBTI (separate question and answer sheet), and one page instruction page. The one page instruction sheet asked participants to do the following: complete the consent form first,

the Demographic sheet second, the LEP third, and the MBTI last; refrain from putting their name on any of the forms, except the consent form (because of confidentiality); write only on answer sheets, the demographic form, and sign and print name on the consent form; check thoroughly for the completion of all instruments (extra credit was only be provided by the instructor only if all instruments are complete); and return entire packet to instructor. Instructors received premade packets, facilitated student/participant identity to numeric code translation via maintaining the consent forms (which I never saw), disseminated packets to students, collected and check for completion of packets, return anonymous packets to researcher, give extra credit to student (at instructors discretion), receive MBTI grade sheets with numeric codes (from me), and use the consent form (which contains numeric code to participant identity information) to return the MBTI grade sheets to appropriate students/participants. Completed packet contents were scored and resulting data was input into SPSS spreadsheet. After all participant data was input into the SPSS spreadsheet, the analyses described in the next section were performed.

Data Analyses

Research Question 1: Which combination of the MBTI preference dichotomies (E-I, S-N, T-F, J-P) best predicts LEP's cognitive complexity index score?

H_1: MBTI preference combinations will reliably predict LEP's cognitive complexity index score.

Variables: The four MBTI preference categories (E-I, S-N, T-F, J-P; quantitatively, continuously transformed) were the four independent variables (or

predictor variables). LEP's cognitive complexity index score was the quantitative dependent variable.

Analysis: A multiple regression was performed to analyze research question 1. "Multiple regression identifies the best combination of predictors (IVs) of the dependent variables. Consequently, it is used when there are several independent quantitative variables and one dependent quantitative variable" (Mertler & Vannatta, 2005, p. 14).

Rationale: This research question and analysis took advantage of both the MBTI's and LEP's capacity to produce quantitative (continuous) scores, in order to explore mathematical relationships between the two instruments. Additionally, this research question highlighted the independence and interrelationship of each of the four MBTI preference categories, while simultaneously allowing each category to provide increased data through the use of the continuous score transformation (as opposed to the MBTI's traditional bi-modal scoring method). If specific MBTI combinations reliably predict the LEP's cognitive complexity index score, this would support the notion of relationships existing between states and traits (i.e., the state-trait continuum).

Power: The target sample size was 85 participants considering a medium effect size, power .80, and α =.05 (G*Power, 3.1; Faul, Erdfelder, Buchner, & Lang, 2009).

Research Question 2: To what extent does LEP's cognitive complexity index score predict the overall MBTI preference clarity category (very clear, clear, moderate, and slight)?

H_2: LEP's cognitive complexity index score will significantly predict the overall MBTI preference clarity category.

Variables: LEP's cognitive complexity index was the quantitative independent variable (or predictor variable). Each participant provided the same cognitive complexity index score four times, once for each MBTI preference scale (i.e., E-I, S-N, T-F, J-P). The MBTI clarity rating classifications (very clear, clear, moderate, and slight) were the categorical DVs (or criterion variables).

Analysis: A discriminant analysis was performed to analyze research question 2. "Discriminant analysis ... seeks to identify which combination of quantitative IVs best predict group membership as defined by a single DV that has two or more categories" (Mertler & Vannatta, 2005, p. 16).

Rationale: This research question aimed to specifically examine the shared dualistic or dichotomous structures the LEP and MBTI in order to explore the state-trait continuum. Additionally, the MBTI manual identified unanswered questions regarding its clarity index, specifically regarding the unpredictable meanings of the very clear and slight categories (see MBTI instrumentation section). This research question/analysis intended to examine possible relationships between the clarity indices and the cognitive complexity index score. Specifically, was it the developmental level that influences the relatively predictable meaning of the clarity categories? This analysis aimed to explore the state-trait continuum by investigating the shared dichotomous (bi-modal), zero-point (tri-modal), bi-polar continuum, and Jungian continuum (normal curve) structures of the LEP and MBTI and by investigating the above-stated MBTI scoring issues.

Power: The target sample size was 44 participants considering a medium effect size, power .80, and $\alpha = .05$ (G*Power, 3.1; Faul, Erdfelder, Buchner, & Lang, 2009).

Data was analyzed using statistical software (SPSS 19.0).

Strengths of Proposed Study

This study explored the state-trait continuum, a key concept of positive psychology (Seligman & Csikszentmihalyi, 2000). Through repeated exploration and possible verification of the state-trait continuum, a more balanced research focus on both positive and negative human trait development might result. Championing positive human characteristics corresponds directly to CACREP's aspirations to advance theories for aiding optimal wellness, growth, and development of the human spirit, mind, or body over the lifespan (2011). Through the exploration of positive psychology and the state-trait continuum, this study provided research to facilitate the development of positively-minded counselor research, practice, and practitioners that directly corresponds to CACREP's guidelines for a positive counselor professional identity.

Summary of Methodology

Chapter 3 has described the methodology used in this quantitative, non-experimental, survey-based study that explores the mathematical relationships between the LEP (a state instrument) and the MBTI (a trait instrument). Chapter 4 presents the results attained using these methods.

CHAPTER FOUR: RESULTS

The purpose of this study was to examine positive psychology through the exploration of the state-trait continuum by determining mathematical relationships between pre-existing state and trait instruments (i.e., the Learning Environments Preferences and Myers-Briggs Type Indicator, Form M; respectively). Chapter 4 provides the results of this study. The chapter is organized as follows: preliminary data screening, descriptive data of participants, research question 1, and research question 2.

Preliminary Data Screening

Prior to entering data into SPSS, instruments were carefully reviewed for completion. If instruments were incomplete, an e-mail was sent to the participant requesting specific corrections. Only complete instruments were scored and used to form the SPSS data set. Prior to analysis, univariate data screening was performed for all variables to locate missing or invalid data utilizing SPSS Frequencies, Explore, and Plot procedures. These SPSS procedures verified the accurate completion of all variables.

Descriptive Data of Participants

Survey instruments were mailed to 134 currently enrolled human services students. Of these, 110 participants provided appropriately completed instruments, representing a completion rate of 82%.

Participants were asked to indicate their age. Descriptive data for participants' responses are presented in Table 1.

Table 1

Age

Age	Frequency *(n)*	Percent
18 – 21	31	28.2%
22 – 24	25	22.7%
25 – 33	26	23.6%
34 – 56	28	25.5%
Total	*N = 110*	100%

Participants were asked to indicate their gender. Descriptive data for participants'

responses are presented in Table 2.

Table 2

Gender

Gender	Frequency *(n)*	Percent
Female	88	80%
Male	22	20%
Transgender	0	0%
Other (not specified)	0	0%
Total	*N = 110*	100%

Participants were asked to indicate their race/ethnicity. Descriptive data for participants' responses are presented in Table 3.

Table 3

Race/Ethnicity

Race/ Ethnicity	Frequency *(n)*	Percent
Black/African American	29	26.4%
Asian	0	0%
Hispanic/Latino	5	4.6%
White/European-American	71	64.5%
Biracial/Multiracial	3	2.7%
Other (not specified)	2	1.8%
Total	*N = 110*	100%

Participants completed the MBTI which contains the following preference scales: extraversion/introversion (E-I), sensing/intuition (S-N), thinking/feeling (T-F), and judging/perception (J-P). Each preference scale was graded using the preference clarity classifications of very clear, clear, moderate, and slight in either direction of the preference scale [for example, very clear extraversion, clear extraversion, moderate extraversion, slight extraversion, slight introversion, moderate introversion, clear introversion, or very clear introversion]. Descriptive data for participants' MBTI preference scale by clarity rating classification are presented in Table 4.

Table 4

MBTI preference scale by clarity rating classification

MBTI	Very Clear (vc)	Clear (c)	Moderate (m)	Slight (s)	Slight (s)	Moderate (m)	Clear (c)	Very Clear (vc)	Total
Extravert - Introvert (E-I)	12.7% (vc E)	21.8% (c E)	12.7% (m E)	17.3% (s E)	10.9% (s I)	10% (m I)	12.7% (c I)	1.8% (vc I)	100%
Sensing - Intuition (S-N)	2.7% (vc S)	12.7% (c S)	26.4% (m S)	8.2% (s S)	16.4% (s N)	19.1% (m N)	11.8% (c N)	2.7% (vc N)	100%
Thinking- Feeling (T- F)	3.6% (vc T)	4.5% (c T)	6.4% (m T)	7.3% (s T)	14.5% (s F)	20% (m F)	29.1% (c F)	14.5% (vc F)	100%
Judging - Perceiving (J-P)	9.1% (vc J)	24.5% (c J)	16.4% (m J)	11.8% (s J)	12.7% (s P)	6.4% (m P)	15.5% (c P)	3.6% (vc P)	100%

Participants completed the MBTI which contains the following preference scales: extraversion/introversion (E-I), sensing/intuition (S-N), thinking/feeling (T-F), and judging/perception (J-P). For this demographic, each preference scale was using the preference clarity classifications of very clear, clear, moderate, and slight in *one* direction (or collapsed) for each preference scale [for example, on the E-I preference scale: very clear extraversion *or* very clear introversion was scored as "very clear (vc)," clear extraversion *or* clear introversion was scored as "clear (c)," moderate extraversion *or* moderate introversion as "moderate (m)", and slight extraversion *or* slight introversion as "slight (s)"]. This scoring method was repeated for the other preference scales (S-N, T-F, and J-P). By collapsing the preference scales in this unidirectional manner, the effects of

the overall severity of rating could be better isolated into these four categories (vc, c, m, or s). Descriptive data for participants' responses are presented in Table 5.

Table 5

MBTI preference scale by collapsed clarity rating classification

MBTI	Very Clear (vc)	Clear (c)	Moderate (m)	Slight (s)	Total
Extravert - Introvert (E-I)	14.5% *(vc E or I)*	34.5% *(c E or I)*	22.7% *(m E or I)*	28.3% *(s E or I)*	100%
Sensing - Intuition (S-N)	5.5% *(vc S or N)*	24.5% *(c S or N)*	45.5% *(m S or N)*	24.5% *(s S or N)*	100%
Thinking- Feeling (T- F)	18.2% *(vc T or F)*	33.6% *(c T or F)*	26.4% *(m T or F)*	21.8% *(s T or F)*	100%
Judging - Perceiving (J-P)	12.8% *(vc J or P)*	40% *(c J or P)*	22.7% *(m J or P)*	24.5% *(s J or P)*	100%
Average	12.7% *(vc average)*	33.2% *(c average)*	29.3% *(m average)*	24.8% *(s average)*	100%

Participants completed the LEP. The categorical Perry positions used in the LEP are position 2 (dualism), position 3 (early multiplicity), position 4 (late multiplicity), and position 5 (relativism). Regarding categorical LEP meanings, position 2 (dualism), is characterized by dichotomies and dualisms (i.e., We-Right-Good vs. They-Wrong-Bad or some variation). The world thus consists essentially of two boxes—rights and wrongs—

and there is generally little trouble distinguishing one from the other" (Moore, 2001, p. 3). "Position 3 [early multiplicity] represents the first acknowledgement of legitimate uncertainty in the world; instead of two boxes or categories, right and wrong, there are now three; right, wrong, and 'not yet known'" (Moore, 2001, p. 3). "In position 4 [late multiplicity], the 'not yet known' notion of position 3 often becomes a new certainty of 'we'll never know for sure,' and thus what is most important is one's own thinking. Self-processing and a sense of idea ownership increases, but frequently in position 4 the stance taken is that there is no non-arbitrary basis for determining what's right (Benack, 1982)" (Moore, 2001, p. 3). Position 5 (relativism) "represents a fundamental transformation of one's perspective – from a vision of the world as essentially dualistic, with a growing number of exceptions to the rule in specific situations, to a vision of a world as essentially relativistic and context-bound with a few right/wrong exceptions. The most significant distinction between the pseudo-relativism of position 4 and the contextual relativism of position 5 is the self-consciousness of being an active maker of meaning" (Moore, 2001, p. 4). Descriptive data for participants' responses are presented in Table 6.

Table 6

LEP Position

LEP Position	Frequency *(n)*	Percent
2 (dualism)	24	21.8%
3 (early multiplicity)	70	63.7%
4 (late multiplicity)	16	14.5%
5 (relativism)	0	0%
Total	*N =110*	100%

Research Question 1

Research question 1 asked: Which combination of the MBTI preference categories (E-I, S-N, T-F, J-P) best predicts LEP's cognitive complexity index score? To answer this question, a multiple regression (enter method) was performed. Specifically, the four MBTI preference categories (E-I, S-N, T-F, J-P; continuously transformed) were the four independent variables (or predictor variables). LEP's cognitive complexity index score was the quantitative dependent variable.

Regarding continuous MBTI scoring, "when conducting correlational [or multiple regression] research with the MBTI, it is useful to treat the dichotomous preference scores as if they were continuous scales. Continuous scores are a linear transformation of preference scores, using the following convention: for E, S, T, or J preference scores, the continuous score is 100 minus the numerical portion of the preference score. For I, N, F, or P preference scores, the continuous score is 100 plus the numerical portion of the

preference score" (Myers & McCaulley, 1986, p. 9; for the conversion table for preference scores and continuous scores, see Appendix B).

Regarding LEP grades and the continuous cognitive complexity index (CCI) specifically, "the CCI is the primary score of interest, reflecting a single numerical index along a *continuous scale* [writer added emphasis] of intellectual development from 200 to 500, roughly analogous to [Perry's] Position 2 (200) to Position 5 (500) .... one needs to be cautious in drawing direct parallels between the CCI score and the Perry continuum of positions; it is perhaps more appropriate to think of the CCI as a more general indicator of increasing cognitive complexity or intellectual development" (Moore, n.d, pp. 2-3). In other words, the LEP's continuous CCI is the preferred grading method used by the LEP and any categorical classification result from transformations of this primary continuous scoring method.

Prior to conducting the multiple regression analysis, various data screening methods were conducted. First, due to careful preliminary scoring and transcription, there were no missing, incorrectly entered, or outlier scores for any variables. This was verified by SPSS descriptive analyses. Second, the independent variable's four MBTI preference categories (E-I, S-N, T-F, J-P; continuously transformed] were examined for possible issues of collinearity and multicollinearity. Variance inflation factors (VIFs) for both examinations ranged from 1.0 to 1.3, suggesting that the continuous transformation of the MBTI preference categories (E-I, S-N, T-F, J-P) did not demonstrate significant individual or combined problematic between group correlations as to negatively impact the results of the multiple regression. Third, the dependent variable (continuous LEP) was checked for normality and homoscedasticity. A combination of a Shapiro-Wilk's test for

normality ($p > .05$) and visual review of the histogram and Q-Q plot suggest the LEP scores did not significantly deviate from a normal distribution and were therefore appropriate for a linear analysis. Consequently, no numeric transformations were required. Regarding homoscedasticity, the histogram and P-P plot (of the residuals associated with the dependent variable regression of standardized residual) suggested that the Y scores along the regression line demonstrated an appropriately random distribution. These results were particularly important, because strictly speaking, the LEP's cognitive complexity index derives from an ordinal scale although it is described as "continuous" (Moore, n.d, pp. 2-3). There is controversy whether ordinal data can be used in parametric tests. O'Brien (1979) however suggests that if the dependant variable demonstrates appropriate normality and homoscedasticity, then the benefits of using ordinal data outweigh the potential drawbacks.

The results supported the utility of continuous MBTI preference categories (E-I, S-N, T-F, J-P) in predicting the LEP's cognitive complexity index score. $F(4,105) = 4.05$, $p = .004$, $R^2 = .13$. Specifically, both the continuous S-N and continuous J-P preferences categories significantly contributed to the prediction of LEP's cognitive complexity index score. A summary of regression coefficients is presented in Table 7.

Table 7

Coefficients for MBTI preference categories (n =110)

Variable	*B*	*SE(B)*	*β*	*t*	Sig. (*p*)	*Partial*
Constant	285.81	28.48	--	10.04	--	--
E-I (continuous)	-.03	.16	-.02	-.17	.86	-.02
S-N (continuous)	.65	.17	.39	3.79	.00	.34
T-F (continuous)	.05	.17	.03	.28	.78	.03
J-P (continuous)	-.35	.18	-.20	-1.99	.05	-.18

Research Question 2

Research question 2 asked: To what extent does LEP's cognitive complexity

index score predict the overall (collapsed) MBTI preference clarity category (very clear,

clear, moderate, and slight)? A discriminant analysis was performed to determine

whether individuals' LEP's cognitive complexity index scores predict their MBTI

preference categories. Each of the MBTI preference categories (vc, c, m, and s, for each

of the MBTI preference scales) represents a categorical group. Specifically, the LEP's

cognitive complexity index was the quantitative independent variable (or predictor

variable). Each participant provided the same cognitive complexity index score four

times, once for each MBTI preference scale (i.e., E-I, S-N, T-F, J-P) resulting in an

overall n of 440. The MBTI clarity rating classifications (very clear, clear, moderate, and

slight; for each MBTI preference scale) were the categorical DVs (or criterion variables).

Data screening procedures for the discriminant analysis were identical to the procedures conducted for research question one, and therefore no additional screening procedures were applied to test for missing values, outliers, normality, linearity, and homoscedasticity. Box's M test revealed that the assumption of equality of covariance could be assumed $(Box's M = .719, p > .05)$.

Results indicate that the function of the LEP cognitive complexity index predictor significantly differentiated between MBTI clarity rating classification types (very clear, clear, moderate, and slight), $\Lambda = .98$, $\chi^2(3, N = 440) = 8.0, p = .046$. The discriminant function revealed a small association between groups and the predictor, accounting for only 2% of the between group variability. The cross-validated classification showed that overall 16% were correctly classified. A summary of the collapsed MBTI clarity rating classification descriptive data is presented in Table 8.

Table 8

Descriptive data for collapsed MBTI clarity rating classification

Variable	*Mean*	*SD*	*Frequency*	*Percent*
Very clear	335	44.16	56	12.7%
Clear	320.85	41.61	146	33.2%
Moderate	317.44	40.55	129	29.3%
Slight	317.16	42.90	109	24.8%
Total	320.74	42.20	440	100%

In order to gain a better understand how the overall (collapsed) MBTI preference clarity category (very clear, clear, moderate, and slight) related to the LEP's cognitive complexity index score (CCI), a follow-up statistical analysis was performed. Specifically, a one-way ANOVA utilizing the four categorical levels of the overall (collapsed) MBTI preference clarity category (very clear, clear, moderate, and slight) as the independent variable and the continuous LEP CCI score as the dependent variable was performed. The LEP CCI differed significantly across the four MBTI preference categories (very clear, clear, moderate, and slight), $F(3, 436) = 2.687$, $p = .046$. Tukey post-hoc comparisons of the four groups indicate the very clear (vc) group ($M = 335.00$, 95% CI [323.98, 346.02] gave significantly higher LEP CCI scores than both the moderate (m) group [$M = 317.44$, 95% CI [310.18, 324.70] and the slight (s) group [$M = 317.16$, 95% CI [309.26, 325.05]. Other comparisons were not significant at $p < .05$.

CHAPTER FIVE: DISCUSSION

Chapter 5 presents a discussion of the results of this study. The chapter is organized as follows: summary of findings, implication for positive psychology, implications for counselor education, limitations of the study, suggestions for future research, and overall summary.

Summary of Findings

The purpose of this study was to examine "positive psychology" through the exploration of the state-trait continuum by determining mathematical relationships between pre-existing state and trait instruments [i.e., the Learning Environments Preferences (LEP) and Myers-Briggs Type Indicator, Form M (MBTI); respectively]. These survey instruments were mailed to 134 currently enrolled human services students. Of these, 110 participants provided appropriately completed instruments, representing a completion rate of 82%. The average participant was a 29 year old; white; female; with a clear E, moderate S, clear F, and clear J (on the MBTI); and Position 3, Early Multiplicity (on the LEP).

<u>**Research Question 1**</u>

Research question 1 asked: Which combination of the MBTI preference dichotomies (E-I, S-N, T-F, J-P) best predicts LEP's cognitive complexity index score? Specifically, both the continuous S-N and continuous J-P MBTI preferences categories significantly contributed to the prediction of LEP's cognitive complexity index score. Because a purpose of this study was to explore the state-trait continuum by determining mathematical relationships between pre-existing state and trait instruments (i.e., the LEP and MBTI; respectively), this result supports the view that states and traits may be

related. This result was previously hypothesized by Moore (1983, p. 12) who stated "finally, the issue of stage/style [LEP/MBTI; state/trait] interaction in cognitive development needs to be raised again. The two areas seem to be a distinct phenomena, yet a careful analysis of their implication for learning characteristics show areas of obvious overlap between the two frameworks ... could be that there is sufficient overlap in the conceptual descriptions of the two models ... that the two models are confounded."

Between the continuous S-N and continuous J-P MBTI preferences categories, the continuous S-N preference category demonstrated a stronger predictive capacity. Specifically, increased clarity towards the Intuition (N) end of the continuum was related to higher LEP scores/developmental levels. Conversely, increased clarity towards the Sensing (S) end of the continuum was related to lower LEP scores/developmental levels. This result was also previously suggested by Moore (1983, p. 12) who noticed "the apparent tendency for Intuitives [N on the S-N scale] to be overrepresented at position 4 [late multiplicity] while Sensors are under-represented." Regarding the J-P MBTI preference, increased clarity towards the Judging (J) end of the continuum was related to higher LEP scores/developmental levels. Conversely, increased clarity towards the Perceiving (P) end of the continuum was related to lower LEP scores/developmental levels. There was not however a precedent in the literature reviewed suggesting that the continuous J-P MBTI preference scale in general would also be significantly related to cognitive developmental levels and cognitive complexity. Additionally, there was no literature precedent suggesting that the Judging end of the J-P continuum would be related to higher cognitive complexity.

On the other hand, the continuous T-F and continuous E-I MBTI preference categories did not significantly contribute to the prediction of LEP's cognitive complexity index score. Myers et al. (1998, p. 122) may have suggested this result when they stated, "social demands can also provide different pressures for men and women on the T-F dichotomy, men are encouraged more toward Thinking activities and women toward Feeling activities." In other words, the MBTI manual suggests a precedent that the T-F MBTI dichotomy can be influenced by what society imagines to be an appropriate preference based on one's demographics. In this way, could society in general and the culture of human services students more specifically, have created a confounding variable in this study? Human services students (the sample used for this study) could be argued to place a higher value on feelings (as opposed to thoughts). Consequently, the typically Jungian "no type is better" T-F dichotomy may have been polarized. Could a similar dynamic have occurred to the E-I preference category as well?

In summary, research question 1 found a significant predictive relationship between two MBTI trait/ personality scales (S-N and J-P) and the LEP's state/developmental cognitive complexity index. This result supports the notion of a state-trait continuum.

Research Question 2

Research question 2 asked: To what extent does LEP's cognitive complexity index score predict the overall MBTI preference clarity category (very clear, clear, moderate, and slight)? The results supported the LEP cognitive complexity index's utility to significantly differentiate the collapsed MBTI clarity rating classifications (very clear, clear, moderate, and slight). This research question explored a possible shared

dichotomous structure between the LEP and MBTI. Mathematical significance suggested

a closer look at the relationship between the LEP's cognitive complexity index and the

MBTI clarity rating classifications. Specifically, the clarity rating classification means

(Table 8 and follow-up ANOVA) present a trend of increased clarity being associated

with higher LEP's cognitive complexity index scores. In other words, very clear

preference scores across the MBTI dichotomies are associated with higher cognitive

complexity and developmental level. Conversely, both slight and moderate preference

scores across the MBTI dichotomies are associated with lower cognitive complexity and

developmental level.

This trend however was unexpected. Because dualism (a lower developmental

level) has been associated with extreme "We-Right-Good vs. They-Wrong-Bad" (Moore,

2001, p. 3) thinking and decision making, it was hypothesized that lower LEP cognitive

complexity indexes would be associated with very clear (more extreme) preference

clarity classifications. Although the literature review suggested many structures

simultaneously functioning on the state-trait continuum [bi-modal, zero-point tri-modal,

polarized continuum (positive/negative), and Jungian continuum (positive/positive)], this

trend suggests a focus on two structures in particular. These would be continuums built

on polarized (positive/negative, good/bad, right/wrong, dualistic, or bi-polar) dichotomies

compared against continuums built on Jungian (positive/positive, good/good, right/right,

or relativistic) dichotomies. In this way, extreme decisions made on polarized

(positive/negative) structures may be associated with lower developmental levels while

more extreme decisions made on Jungian (positive/positive) structures may be associated

with higher developmental levels. Consequently, functioning from persistently polarized

(positive/negative) structures may result in "unstable, non-linear behavior in opinion formation and collective decision-making" (Flache & Torenvlied, 2001, p. 22). Conversely, functioning from Jungian (positive/positive) structures may encourage diversity, authenticity, and creativity [or any of the long list of positive traits highlighted by Seligman and Csikszentmihalyi, 2000].

In summary, research question 2 found a significant mathematical relationship suggesting that very clear preference scores across the MBTI dichotomies are associated with higher cognitive complexity and developmental level. Conversely, both slight and moderate preference scores across the MBTI dichotomies are associated with lower cognitive complexity and developmental level. Theses results support the notion of a state-trait continuum by suggesting that states and traits may be unified by dichotomous-continuums (i.e. continuous structures being built on either positive/positive or positive/negative dichotomous structures).

Implications for Positive Psychology

The literature review suggested that positive psychology had encouraged state-trait continuum research in order to explore how states might develop into positive traits. The present study found two mathematically significant relationships between the LEP (a state instrument) and the MBTI (a trait instrument). These relationships support the notion of a state-trait continuum. Research question 1 found that both the continuous S-N and J-P preferences categories significantly contributed to the prediction of LEP's cognitive complexity index score. This shows how two specific MBTI scales (trait measures) relate to the LEP, states, and development in general. Although these findings are meaningful, it is the second relationship that may hold the strongest implications for

positive psychology. Research question 2

utilized the MBTI scales as four examples of Jungian (positive/positive) dichotomous-continuums and found that very clear preferences across these Jungian dichotomous-continuums were associated with higher cognitive complexity and developmental level. This is in stark contrast to very clear preferences on polarized (positive/ negative) dichotomous-continuums being associated with dualism, conflict, lower cognitive complexity, and lower overall developmental level. Along these lines, the implication to positive psychology might be to conceptually explore the relationship between negative and positive experiences (whether states or traits, short-lasting or longer-lasting) as a bidirectional progression of structures, starting with polarized on one end and Jungian dichotomous-continuums on the other. This implication seems compatible with Linley, Joseph, Harrington, and Wood (2006) who while conceptualizing the positive and negative poles of the human condition stated, "by doing so, we do not mean in any way to imply or support the dichotomization of the human experience into positive and negative, in contrast, we view them as falling along a continuum" (p. 3). In summary, these results supported the notion of positive psychology's state-trait continuum. Furthermore, this study may suggest deeper implications to not only conceptualize a progression (continuum) from momentary to longer-term experiences (i.e., states to traits), but to simultaneously conceptualize a bi-direction progression between negative and positive experiences in general.

Implications for Counselor Education

The primary implication relates to the generalization of these results. From one perspective, this study explored and found mathematical connections between the MBTI

and the LEP. From another perspective, this study supported the growing literature (from many different fields) regarding the benefits of creating continuous structures between previously unrelated, different, or dichotomous concepts. Furthermore, as it could be argued that psychological research has focused more on negative experiences (as opposed to the positive), it could also be argued that psychological research has focused more on differences in human experience (as opposed to the similarity). If indeed an underlying dichotomous-continuum exists that connects positive experiences with negative, short-term experiences with long, and differences in experiences with the similarities, then this structure would deserve increased research focus. The study of the dichotomous-continuum could not only serve to focus research, but it may also facilitate the training of new counselors by streamlining the conceptualization, treatment planning, and selection of interventions for clients. In this way, brought to full fruition, counseling could not only be on the forefront of continua research (which the literature review suggests will play heavily in the pending DSM-V), but also on the forefront of an empirically-based counseling-specific therapeutic model.

Limitations of the Study

There are possible limitations to this study that deserve to be identified. First is the possible fallibility of the instruments used (i.e., the LEP and the MBTI). If an intention of this study was to explore the state-trait continuum by determining mathematical relationships between a state instrument (LEP) and a trait instrument (MBTI), do these instruments truly measure states and traits? Are these the best instruments to explore this relationship? Additionally, as mentioned in the methodology section, both instruments have been questioned regarding reliability and validity. Could

these possible issues be compounded when mathematically compared? The second limitation relates to the sampling method used. Specifically, the acquisition of participants by means of a concurrently taken undergraduate course could certainly generate possible confounding variables. Despite strict confidentially making it impossible for the corresponding instructor to know a participant's results, participants may still have felt the need represent themselves in a program-specific or socially favorable manner. On the other hand, because of confidentiality from the instructors, students may not have been fully motivated to thoughtfully complete the instruments. Additionally, this sample identified no individuals from the LEP's highest developmental stage (position 5, relativism; as represented in Table 6). It is unclear if this truncation was a product of this particular population or a product of decreased numbers of individuals at higher developmental levels in general. Furthermore, because of the relatively large sample size used for research question 2 (n = 440), the statistically significance results may contribute to theoretical understanding, but not translate to practical usefulness (as this model only accounting for 2% of the between group variability). Third, because of the exclusive use of the undergraduate student population, the results obtained have limited capacity to generalize to other populations. In summary, the use of these instruments, this sampling method, and this population represent possible limitations of the study.

Suggestions for Future Research

The results, implications, and limitations of this study suggest possibilities for future research. The first and most basic suggestion would be to replicate this study with a more representative sample. Although valuable, it may be difficult to acquire a

sufficient sample size from the general public. Alternately, it may be easier and equally valuable to replicate this study using counseling clients. Specifically, it might be interesting to explore how various levels of mental health symptom severity relates to MBTI (personality) and LEP (developmental level) results.

The second suggestion relates to how social demands may influence the MBTI results. Specifically, these social demands may impact whether the particular MBTI preference scale (E-I, S-N, T-F, J-P) is conceptualized as a polarized or Jungian dichotomous-continuum. In order to shed light on these interactions, it may be valuable to replicate this study but include an instrument that measures three domains of demands. These domains could include: social demands, professional demands (in this case human services or counselors in training), and personal demands. Through this additional instrument, it could be determined to what degree the individual is influenced by each domain to perceive each MBTI preference scale along a polarized to Jungian dichotomous-continuum. In this way, mathematical relationships between the MBTI, LEP, and domains of demands could be measured.

The third suggestion relates to exploring classic/time-honored dichotomies commonly used in counseling (other than those in the MBTI). This suggestion has three parts (Part A, B, and C). Part A would seek out these classic/time-honored dichotomies. This could be accomplished by a combination of literature review and qualitative questionnaires/interviews with professionals in the counseling field. Part B would follow the procedure from suggestion 1, but investigate the derived classic/time-honored dichotomies instead. Part C would seek out similarities and differences between the dichotomies. Exploring similarities would serve to group dichotomies within a domain.

Exploring differences would serve to help define the various domains or relatively unconnected sub-sections within domains. Through repeated cycles of Parts A through C, this research would identify, classify, and synthesize both polarized and Jungian dichotomies. As a result, counseling would have a powerful tool that connects positive experiences with negative, short-term experiences with long, and differences in experiences with the similarities. This tool could facilitate the training of new counselors by streamlining the conceptualization, treatment planning, and selection of interventions for clients.

Overall Summary

The purpose of this study was to examine positive psychology through the exploration of the state-trait continuum by determining mathematical relationships between pre-existing state and trait instruments (i.e., the Learning Environments Preferences and Myers-Briggs Type Indicator, Form M; respectively). This study had 110 undergraduate human services students as participants. Research question 1 found two MBTI trait/ personality scales (S-N and J-P) significantly contributed to the prediction of the LEP's state/developmental cognitive complexity index. Research question 2 found a significant mathematical relationship indicating that very clear preference scores across the MBTI dichotomies are associated with higher cognitive complexity and developmental level. These results support the notion of a state-trait continuum by suggesting that states and traits may be unified by dichotomous-continuums (i.e. continuous structures being built on either positive/positive or positive/negative dichotomous structures). Implications from these findings suggest the continued exploration of continua between previously dichotomous variables (or dichotomous-

continua) in order to formulate a powerful tool for the conceptualization, treatment planning, and selection of interventions for clients.

A Final Word on Dichotomies: 3-D Perspective

It may be fair to say that mental health counselors and psychologists are clearly motivated to better understand relationships. Along this line, a simple relationship might be symbolically represented as perspective A, perspective B, and the forces between them. Philosophically, it was the exploration of rudimentary relationships like this that was at the heart of this study. I speculated that a better understanding of simple relationships might be generalizable to a better understanding of a multitude of different relationships. Specifically, these various relationships between A and B could be represented by various and possibly multiple dichotomous variables. On one end of the dichotomy is perspective A and on the other end is perspective B. Mental health counseling and psychology have numerous examples of such dichotomies (quantitative/qualitative, conscious/unconscious, nature/nurture, manic/depression, emic/etic, etc., as well as the dichotomies represented in the MBTI). Furthermore, in this study, the developmental progression of forces between dichotomous variables was conceptualized as the different stages of Perry's developmental model. Specifically, dualism was associated with conflict resulting from a perceived disconnect between A and B. The developmental progression then moved towards conflict resolution (relativism) as both A and B approached a mutual capacity to recognize the benefit of the other. If dichotomies and development are put together in this manner (along a dichotomous-continuum), it can be suggested that a large proportion of

dichotomous conflicts might follow Perry's pattern of developmental progression (dualism, early multiplicity, late multiplicity, and relativism) towards resolution. In other words, the specifics of nearly any conflict could be described using various dichotomous variables, while the pattern of conflict resolution between these dichotomies might be predicted to follow the same pattern of developmental progression proposed by Perry.

Practically speaking, dichotomous-continua could benefit mental health counselors and their clients by offering a simple yet relatively comprehensive model for general conflict resolution. Specifically, if a client has a conflict, both the client and counselor could work together to identify a dichotomy (or a set of dichotomies) that best characterizes the conflict. This method of conflict classification might also be beneficial for case conceptualization and treatment planning. Afterward, both the client and counselor could review how Perry conceptualizes resolution. A strength-based approach might suggest an exploration of how the client arrived at resolutions in the past and relate these to Perry's model. Another consideration regarding the generalization capacity of this conceptualization relates to the benefits of repeated exposure of this technique. Consequently, clients may be positively reinforced by seeing how different or new conflicts can be resolved with dichotomous-continua skills with which they are already familiar. Even though this basic model of resolution can be easily generalized to a multitude of conflicts or relationship dynamics, this does not mean that dichotomy-specific interventions cannot be used. On the contrary, if for example a client struggled with outwardly directing emotions (associated with anger) as opposed to inwardly directing

(associated with depression), the wealth of anger management research and associated interventions would be appropriate for use by the mental health counselor. In this way, the selection of time-honored dichotomies could direct the counselor to various theoretical models and specific interventions that are associated with that dichotomy. Lastly, the literature review suggested a meaningful analogy that clients and clinicians can use to envision the furthest-reaching benefits of this model. Typically, human eyes see in 3-D. In this way, vision is a simple relationship between perspective A and perspective B. When the two perspectives/eyes work together however, they see in 3-D, which allows the individual to assess their surroundings in a manner far superior than any one perspective by itself. Consequently, through this simple analogy, clients can be encouraged not only to cease their conflict (arguing over which eye is better), but instead strive to generate a 3-D perspective between the variables that were previously at odds. Ultimately, the end-goal of the dichotomous-continuum model is not only to achieve conflict resolution, but furthermore to acquire an increased perception that facilitates improved navigation through this world.

CHAPTER SIX: MANUSCRIPT

AN EXPLORATION OF THE STATE-TRAIT CONTINUUM

IN MENTAL HEALTH COUNSELING AND POSITIVE PSYCHOLOGY

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ABSTRACT

Mental health counselors value remaining positive in the face of adversity. Consequently, positive psychology has placed an emphasis on uncovering how long-enduring positive traits (e.g., hope, wisdom, and creativity) can be developed from short-term positive states. This search has resulted in positive psychology's conceptualization of a state-trait continuum. This study explores the state-trait continuum by examining possible quantitative relationships between a state instrument (the Learning Environment Preferences) and a trait instrument (the Myers-Briggs Type Indicator). Research question 1 found a significant predictive relationship between two MBTI scales (S-N and J-P) and the LEP's cognitive complexity index. Research question 2 found a significant relationship suggesting that very clear preference scores across the MBTI dichotomies are associated with higher cognitive complexity.

INTRODUCTION

As a mental health counselor, I turn to the CACREP standards to better understand my professional identity. In reviewing CACREP's counselor identity section, I noted the following aspirations: "promoting social justice," to "promote optimal wellness and growth of the human spirit, mind, or body," "eliminating biases, prejudices, and processes of intentional and unintentional oppression and discrimination," and a focus on client resilience (2011, p. 11). After synthesizing these characteristics and motives, I achieved an overall sense that mental health counselors aspire to be an extremely positive group. The following two studies however appear to be in contradiction to the stated philosophy of mental health counselors. First, Meyers (2000, p. 56) performed "an electronic search of Psychological Abstracts since 1887 [which] turned up 8,072 articles on anger, 57,800 on anxiety, and 70,856 on depression, while only 851 abstracts mentioned joy, 2,958 happiness, and 5,701 life satisfaction. In this sampling, negative emotions trounced positive emotions by a 14-to-1 ratio (even greater than the 7-to-1 margin by which treatment exceeded prevention)." Second, Luthans (2002, p. 697) in "a search of contemporary literature in psychology as a whole found approximately 200,000 published articles on the treatment of mental illness; 80,000 on depression; 65,000 on anxiety; 20,000 on fear; and 10,000 on anger; but only about 1,000 on positive concepts and capabilities of people." This represents a negative/positive publication ratio of approximately 375-to-1. These two studies highlight that psychological (and counseling) research is distinctively focused on the negative as opposed to the positive. This predisposition, however, is not a new observation. Maslow (1954, p. 354) indicated, "it is as if psychology had voluntarily restricted itself to only

half its rightful jurisdiction, and that the darker, meaner half." Seligman and

Csikszentmihalyi (2000, p. 5) provided a similar, but more recent vantage point, "the

exclusive focus on pathology that has dominated so much of our discipline results in a

model of the human being lacking the positive features that make life worth living." If

mental health counselors aspire for a positive professional identity, but the research has

predominantly focused on the negative, how can this disparity be remedied?

Positive Psychology's Exploration of the State-Trait Continuum

In direct response to the long-standing trend of negatively-focused research in

psychology and mental health counseling, Seligman and Csikszentmihalyi (2000)

introduced "positive psychology ... as a science of positive subjective experience [states],

positive individual traits, and positive institutions [that] promise to improve quality of life

and prevent the pathologies that arise when life is barren" (p. 5). Furthermore, Gable and

Haidt (2005) stated that "positive psychology is the study of the conditions and processes

that contribute to the flourishing or optimal functioning of people, groups, and

institutions" (p. 103). Additionally they asked and answered the following question, "why

do we need a movement in positive psychology? The answer is straightforward. The

science of psychology has made great strides in understanding what goes wrong in

individuals, families, groups, and institutions, but these advances have come at the cost of

understanding what is right with people" (p. 105).

Seligman and Csikszentmihalyi (2000) not only introduced positive psychology,

but from the beginning also suggested "gaps in the knowledge that may be the challenges

at the forefront of positive psychology" (p. 11). "One fundamental gap concerns the

relationship between momentary experiences of happiness and long-lasting well-being"

(p. 11). In other words, there is a need to explore the relationship between the state of happiness and the trait of well-being. Additionally, they highlighted many traits associated with well-being (and the new positive psychology): hope, wisdom, creativity, future mindedness, courage, spirituality, responsibility, perseverance, autonomy, self-regulation, flow, capacity for love, courage, interpersonal skill, aesthetic sensibility, forgiveness, originality, nurturance, altruism, civility, moderation, tolerance, work ethic, etc. The question becomes, how do these positive traits get developed from positive states (or developed in general)? In order to answer this question positive psychologist began to reveal, define, and explore the state-trait continuum.

In theoretical support of states developing into traits, Fredrickson's (2001) "broaden-and-build theory ... posits that experiences of positive emotions broaden people's momentary thought-action repertoires [states], which in turn serves to build their enduring personal resources [traits] ... [and] function as reserves to be drawn on later to manage future threats" (p. 4). In summary, Fredrickson (2001) suggested that emotional states develop into beneficial traits as a part of human survival adaptation.

Structurally, Luthans and Youssef (2007) addressed a continuum framework between "state, state-like, trait-like, and trait" categories, but do not specifically mention the title 'state-trait continuum.' They did however clarify that, "this proposed positivity framework would also require the investigation, application, and integration of nontraditional or understudied positive psychological capacities and a multidisciplinary approach to draw from the relevant literature in other fields of study" (p. 340). Wright (2007) also supported the importance of exploring this structural framework. Specifically, "there is a dire need for the positive movements to reach a conceptual consensus

regarding exactly what temporal period constitutes a state and what constitutes a trait" (p.
180). Similarly, Youssef and Luthans (2007) directly mention the phrase 'state-trait
continuum' when they wrote, "similar to other conceptualizations in the field of
psychology, there seems to be recognized degrees of stability and more of a state-trait
continuum rather than a construct being either stable or not stable, either a trait or state"
(p. 776). Futhermore, Luthans, Avolio, Avey, and Norman (2007) not only mentioned the
phrase 'state-trait continuum' as it related to the positive movements [positive
organizational behavior (POB) and positive psychological capital (PsyCap), but clearly
identified, defined, and provided domain examples of the four categorical positions
between state and trait: "(1) Positive States—momentary and very changeable; represents
our feelings. Examples could include pleasure, positive moods, and happiness. (2) 'State-
Like'—relatively malleable and open to development; the constructs could include not
only efficacy, hope, resilience, and optimism, but also a case has been made for positive
constructs such as wisdom, well-being, gratitude, forgiveness, and courage as having
'state-like' properties as well. (3) "Trait-Like"—relatively stable and difficult to change;
represents personality factors and strengths. Examples could include the Big Five
personality dimensions [e.g., NEO-PI; Costa & McCrae, 1985], core self-evaluations, and
character strengths and virtues (CSVs). (4) Positive Traits—very stable, fixed, and very
difficult to change. Examples could include intelligence, talents, and positive heritable
characteristics" (p. 544). Additionally, Luthans et al. (2007) went on to explain "states
and traits are often considered as independent, dichotomous categories of constructs.
Nevertheless, in defining what constitutes PsyCap we portray states and traits along a
continuum largely determined by the relative degrees of stability in measurement and

openness to change and development" (pp. 543-544). Avey, Luthans, and Mhatre (2008), while reflecting on the current and future research needs for positive psychology and its branches, specify the number one need as a "better understanding of the so-called 'state–trait continuum' so central to the meaning and application of POB and PsyCap" (p. 705).

In summary of positive psychology's exploration of the state-trait continuum, positive psychology has over time become an umbrella term that included POB and PsyCap. Additionally, despite a theoretical framework (the broaden-and-build theory) and having named, defined, and punctuated the need to study the state-trait continuum there remains a current need for additional research on the development of positive states into positive traits.

Purpose of the Study

The purpose of this study was to examine positive psychology through the exploration of the state-trait continuum. This study explored the state-trait continuum by examining the quantifiable relationships between a pre-existing instrument that measures an individual's states and one that measures traits. The state instrument used was the Learning Environment Preferences (LEP; Moore, 1989b). The LEP can provide both continuous and categorical data regarding the Perry developmental scheme (dualism, early multiplicity, late multiplicity, and relativism). The trait instrument used was the Myers-Briggs Type Indicator, Form M (MBTI; Myers, McCaulley, Quenk, & Hammer, 1998). The MBTI can provide both continuous and categorical data regarding the four Jungian personality preference dichotomies (extraversion/introversion, sensing/intuition, thinking/feeling, and judging/perception).

INSTRUMENTATION

The three instruments used in this study were the Learning Environment

Preferences (LEP), the Myers-Briggs Type Indicator (Form M; MBTI), and demographic sheet (asked about age, gender, and race/ethnicity). Only the scores on the LEP and MBTI were used for data analysis. Data collected on the participant demographic sheet was used to describe the participants.

Learning Environment Preferences

The categorical Perry positions used in the LEP are position 2 (dualism), position 3 (early multiplicity), position 4 (late multiplicity), and position 5 (relativism). Regarding categorical LEP meanings, position 2 (dualism), is characterized by dichotomies and dualisms (i.e., We-Right-Good vs. They-Wrong-Bad or some variation). The world thus consists essentially of two boxes—rights and wrongs—and there is generally little trouble distinguishing one from the other" (Moore, 2001, p. 3). "Position 3 [early multiplicity] represents the first acknowledgement of legitimate uncertainty in the world; instead of two boxes or categories, right and wrong, there are now three; right, wrong, and 'not yet known'" (Moore, 2001, p. 3). "In position 4 [late multiplicity], the 'not yet known' notion of position 3 often becomes a new certainty of 'we'll never know for sure,' and thus what is most important is one's own thinking. Self-processing and a sense of idea ownership increases, but frequently in position 4 the stance taken is that there is no non-arbitrary basis for determining what's right (Benack, 1982)" (Moore, 2001, p. 3). Position 5 (relativism) "represents a fundamental transformation of one's perspective – from a vision of the world as essentially dualistic, with a growing number of exceptions to the rule in specific situations, to a vision of a world as essentially relativistic and context-bound with a few right/wrong exceptions. The most significant distinction between the pseudo-relativism of position 4 and the contextual relativism of position 5 is the self-

consciousness of being an active maker of meaning" (Moore, 2001, p. 4).

Regarding LEP grades and the continuous cognitive complexity index (CCI), "the CCI is the primary score of interest, reflecting a single numerical index along a continuous scale of intellectual development from 200 to 500, roughly analogous to [Perry's] Position 2 (200) to Position 5 (500) .... one needs to be cautious in drawing direct parallels between the CCI score and the Perry continuum of positions; it is perhaps more appropriate to think of the CCI as a more general indicator of increasing cognitive complexity or intellectual development" (Moore, n.d, pp. 2-3). In other words, the LEP's continuous CCI is the preferred grading method used by the LEP and any categorical classification result from transformations of this primary continuous scoring method. Furthermore, the CCI not only represents intellectual and ethical development, but is "reflecting a more complex composite of the person's reasoning" (Moore, 1989b, p. 506). In this way, the LEP's CCI (used in this study) provides data regarding an individual's over-arching development of meaning making.

Regarding instrument properties and psychometrics, the LEP consists of "65 items across five different content domains: view of knowledge/learning, role of the instructor, role of the student/peers, classroom atmosphere/activities, and role of evaluation/grading" (Moore, 1989a, p. 5). Each item is rated on a 4-point Likert scale in terms of its significance to the person's ideal learning environment. Regarding administration, "the instrument takes most students 30-45 minutes to complete" and can "be assigned as a 'take home' task" (Moore, 1989a, p. 7). The LEP manual (Moore, 1989a) reports concurrent validity, construct validity, and reliability. Regarding concurrent validity, the LEP was compared with the Measure of Intellectual Development

(MID; Moore, 1982). "In Perry's original research (1970), and in early replication studies (e.g., Clinchy & Zimmerman, 1975), interviews were used to assess students' cognition" (Moore, 1989a, p. 4). Because "interviews were impractical for use with classroom intervention studies," the MID was developed to be "the first major alternative to the interview format, a production-task measure consisting of sentence stems and semi-structured essay task" (Moore, 1989a, p. 4). "The MID and CCI [cognitive complexity index score] correlate .38 with each other, and both about the same with GPA (.36 and .34 respectively)." "Correlations in the area of .25-.35 between cognitive complexity and grades is consistent with other findings (see, for example, Mentkowski & Strait, 1983)" (Moore, 1989a, p. 10). Regarding construct validity, Moore (1989b) found Cronbach alpha coefficients for the Perry positions to be .81 (position 2), .72 (position 3), .84 (position 4), and .84 (position 5). Regarding reliability, "the Cognitive Complexity Index (CCI) showed a test-retest correlation [using a 1 week interval] of .89, suggesting a reasonable amount of stability for the measure over that period" (Moore, 1989a, p. 10).

Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator, Form M (Myers, McCaulley, Quenk, & Hammer, 1998) will be used in this study to measure trait (i.e., type and personality) dynamics regarding participant preferences on four Jungian dichotomies. "The Myers-Briggs Type Indicator (MBTI) instrument is one of the most widely used personality assessments in the world" (Schaubhut, Herk, & Thompson, 2009, p. 4).

Regarding categorical scoring, the MBTI identifies participant preferences on the following dichotomies: extraversion/introversion (E-I), sensing/intuition (S-N), thinking/feeling (T-F), and judging/perception (J-P). Regarding the meaning of each of

the four dichotomies, the Myers & Briggs Foundation website (2011b) provides these clarifying questions. Regarding one's favorite world, "do you prefer to focus on the outer world [E] or on your own inner world [I]?" Regarding information, "do you prefer to focus on the basic information you take in [S] or do you prefer to interpret and add meaning [N]?" "When making decisions, do you prefer to first look at logic and consistency [T] or first look at the people and special circumstances [F]?" Regarding structure, "in dealing with the outside world, do you prefer to get things decided [J] or do you prefer to stay open to new information and options [P]" (para. 7-10)? Typically, each preference is summarized into a dichotomy-based or bi-modal categorization (for example, on the E-I preference dichotomy, regardless of the degree of extraversion, subjects are labeled E). For this study, each preference will not be summarized in a dichotomous or bi-modal manner. Instead, each of the four Jungian dichotomies will be transformed into continuous scores (research question 1) and categorical transformation to preferences clarity indices (i.e., slight, moderate, clear and very clear; research question 2).

Regarding continuous MBTI scoring, "when conducting correlational [or multiple regression] research with the MBTI, it is useful to treat the dichotomous preference scores as if they were continuous scales. Continuous scores are a linear transformation of preference scores, using the following convention: for E, S, T, or J preference scores, the continuous score is 100 minus the numerical portion of the preference score. For I, N, F, or P preference scores, the continuous score is 100 plus the numerical portion of the preference score" (Myers & McCaulley, 1986, p. 9).

Regarding the MBTI preferences clarity index, it accounts for "slight, moderate,

clear and very clear" categorizations in either direction of a preference dichotomy (for example, very clear extraversion, clear extraversion, moderate extraversion, slight extraversion, slight introversion, moderate introversion, clear introversion, or very clear introversion). In this way, the MBTI continuous scoring method is divided into symmetric clarity categorizations. The MBTI scoring templates indicate, "if you wish to report back the respondent additional information about the clarity or his or her preference on the (E-I, S-N, T-F, or J-P) dichotomy, use the conversion table below." For the E-I dichotomy, the raw score to preference clarity conversion is as follows: 11-13, slight (s); 14-16, moderate (m); 17-19 clear (c), and 20-21, very clear (vc). For S-N: 13-15, s; 16-20, m; 21-24, c; and 25-26, vc. For T-F: 12-14, s; 15-18, m; 19-22, c; and 23-24, vc. For J-P: 11-13, s; 14-16, m; 17-20, c; and 21-22, vc. Specifically, the MBTI manual provides the meaning of the clarity index categorizations.

Regarding instrument properties and psychometrics, "Form M is now the standard form" and "contains the newest items, the most precise scoring procedure, and the most current standardization samples to produce scoring weights" (Myers et al., 1998, p.106). The MBTI consists of 93 forced-choice, self-report items (e.g., "Does following a schedule: a) appeal to you or b) cramp you"). A total of 21 items relate to E-I, 26 S-N, 24 T-F, and 22 J-P. The MBTI, Form M takes approximately 15-25 minutes to complete. Regarding internal consistency, the MBTI demonstrated split-half reliability correlations for the four scales that ranged from .89 to .94. Regarding reliability, the MBTI demonstrated test-retest correlations (using a 4 week interval) for the E-I scale ranging from .93 to .95; S-N, .89 to .97; T-F, .83 to .94; and J-P, .90 to .95. Regarding validity, the MBTI manual reviewed several factoral analyses of the theoretical structure of this

instrument. "In sum, when the exploratory and confirmatory factor analytic results are viewed together, there is strong support for the construct validity of the MBTI. Several large-sample, carefully conducted exploratory studies produced 'text-book' four-factor structures that almost exactly matched the hypothesized pattern of loadings (Harvey, 1996)" (Myers et al., 1998, p. 173). Also regarding validity, "correlations of MBTI continuous score have their limitations as evidence for construct validity. They report only the four preference scales one at a time and do not show the 16 types as dynamic entities. Correlations also have the problem of confounding direction and clarity of preference (Myers et al., 1998, p. 173). Although the MBTI scales has been correlated with numerous other personality instruments (i.e., 16 Personality Factors Questionnaire, Millon Index of Personality Styles, California Psychological Inventory, the NEO-PI, FIRO-B, and many others), the resulting correlations are difficult to summarize or use to draw conclusions because the various instruments use widely differing theoretical structures and corresponding scale titles. In summary however, "correlations of the four preferences scales with a wide variety of scales from other instruments support the predictions of type theory regarding the meaning of and the behaviors believed to be associated with the four dichotomies" (Myers et al., 1998, p. 219). However when the MBTI was correlated with the Jungian Type Survey (JTS, Wheelwright, Wheelwright, & Buehler, 1964), an independently developed instrument measuring the same scales (E, I, S, N, T, F; the JTS has no scale comparable to J-P), the correlations between the two instruments are as follows: E .63, I .66, S .54, N .47, T .33, and F .23. "The two instruments appear to be tapping the same constructs" (Myers et al., 1998, p. 184).

METHODOLOGY

Procedure and Participants

A hard copy of the three instruments [the Learning Environment Preferences (LEP), the Myers-Briggs Type Indicator (Form M; MBTI), and demographic sheet (age, gender, and race/ethnicity)], a pre-address stamped envelope, and instructions were mailed to the participants. This survey packet was sent to 134 currently enrolled undergraduate students. Of these, 110 participants provided appropriately completed instruments, representing a completion rate of 82%. The average participant was a 29 year old; white; female; with a clear E, moderate S, clear F, and clear J (on the MBTI); and Position 3, Early Multiplicity (on the LEP).

This study utilized a quantitative, non-experimental, survey-based research design (Mertler & Vanatta, 2005; Rossi, Wright, & Anderson, 1983; Sprinthall, 2007).

Data Analyses

Research Question 1: Which combination of the MBTI preference dichotomies (E-I, S-N, T-F, J-P) best predicts LEP's cognitive complexity index score?

Rationale: This research question and analysis took advantage of both the MBTI's and LEP's capacity to produce quantitative (continuous) scores, in order to explore mathematical relationships between the two instruments. Additionally, this research question highlighted the independence and interrelationship of each of the four MBTI preference categories, while simultaneously allowing each category to provide increased data through the use of the continuous score transformation (as opposed to the MBTI's traditional bi-modal scoring method). If specific MBTI combinations reliably predict the LEP's cognitive complexity index score, this would support the notion of relationships existing between states and traits (i.e., the state-trait continuum).

Variables: The four MBTI preference categories (E-I, S-N, T-F, J-P;

quantitatively, continuously transformed) were the four independent (or predictor)

variables. LEP's cognitive complexity index score was the quantitative dependent

variable.

Analysis: A multiple regression was performed to analyze research question 1.

"Multiple regression identifies the best combination of predictors (IVs) of the dependent

variables. Consequently, it is used when there are several independent quantitative

variables and one dependent quantitative variable" (Mertler & Vannatta, 2005, p. 14).

Research Question 2: To what extent does LEP's cognitive complexity index

score predict the overall collapsed MBTI preference clarity category (very clear, clear,

moderate, and slight)?

Rationale: This research question aimed to specifically examine the shared

dualistic or dichotomous structures the LEP and MBTI in order to explore the state-trait

continuum. Additionally, the MBTI manual identified unanswered questions regarding its

clarity index, specifically regarding the unpredictable meanings of the very clear and

slight categories. This research question/analysis intended to examine possible

relationships between the preference clarity categories (very clear, clear, moderate, and

slight) and the cognitive complexity index score.

Variables: LEP's cognitive complexity index was the quantitative independent (or

predictor) variable. Each participant provided the same cognitive complexity index score

four times, once for each MBTI preference scale (i.e., E-I, S-N, T-F, J-P). The MBTI

clarity rating classifications (very clear, clear, moderate, and slight) were the categorical

DVs (or criterion variables).

Analysis: A discriminant analysis was performed to analyze research question 2. "Discriminant analysis ... seeks to identify which combination of quantitative IVs best predict group membership as defined by a single DV that has two or more categories" (Mertler & Vannatta, 2005, p. 16).

Data was analyzed using statistical software (SPSS 19.0).

RESULTS

Preliminary Data Screening

Prior to the data analysis for research questions 1 and 2, various data screening methods were conducted. First, due to careful preliminary scoring and transcription, there were no missing, incorrectly entered, or outlier scores for any variables. This was verified by SPSS descriptive analyses. Second, the independent variable's four MBTI preference categories (E-I, S-N, T-F, J-P; continuously transformed] were examined for possible issues of collinearity and multicollinearity. Variance inflation factors (VIFs) for both examinations ranged from 1.0 to 1.3, suggesting that the continuous transformation of the MBTI preference categories (E-I, S-N, T-F, J-P) did not demonstrate significant individual or combined problematic between group correlations as to negatively impact the results of the multiple regression. Third, the dependent variable (continuous LEP) was checked for normality and homoscedasticity. A combination of a Shapiro-Wilk's test for normality ($p > .05$) and visual review of the histogram and Q-Q plot suggest the LEP scores did not significantly deviate from a normal distribution and were therefore appropriate for a linear analysis. Consequently, no numeric transformations were required. Regarding homoscedasticity, the histogram and P-P plot (of the residuals associated with the dependent variable regression of standardized residual) suggested that

the Y scores along the regression line demonstrated an appropriately random distribution. These results were particularly important, because strictly speaking, the LEP's cognitive complexity index derives from an ordinal scale although it is described as "continuous" (Moore, n.d, p. 2). There is controversy whether ordinal data can be used in parametric tests. O'Brien (1979) however suggests that if the dependant variable demonstrates appropriate normality and homoscedasticity, then the benefits of using ordinal data in parametric tests outweigh the potential drawbacks.

Research Question 1

Research question 1 asked: Which combination of the MBTI preference categories (E-I, S-N, T-F, J-P) best predicts LEP's cognitive complexity index score?

The results supported the utility of continuous MBTI preference categories (E-I, S-N, T-F, J-P) in predicting the LEP's cognitive complexity index score. $F(4,105) = 4.05$, $p = .004$, $R^2 = .13$. Specifically, both the continuous S-N and continuous J-P preferences categories significantly contributed to the prediction of LEP's cognitive complexity index score. A summary of regression coefficients is presented in Table 1.

Table 1

Coefficients for MBTI preference categories (n =110)

Variable	*B*	*SE(B)*	*β*	*t*	Sig. (*p*)	*Partial*
Constant	285.81	28.48	--	10.04	--	--
E-I (continuous)	-.03	.16	-.02	-.17	.86	-.02
S-N (continuous)	.65	.17	.39	3.79	.00	.34
T-F (continuous)	.05	.17	.03	.28	.78	.03
J-P (continuous)	-.35	.18	-.20	-1.99	.05	-.18

Research Question 2

Research question 2 asked: To what extent does LEP's cognitive complexity index score predict the overall (collapsed) MBTI preference clarity category (very clear, clear, moderate, and slight)?

Results indicate that the function of the LEP cognitive complexity index predictor significantly differentiated between MBTI clarity rating classification types (very clear, clear, moderate, and slight), Λ = .98, χ^2(3, *N =440*) = 8.0, *p* = .046. Box's M test revealed that the assumption of equality of covariance could be assumed (*Box's M* = .719, *p* > .05). The discriminant function revealed a small association between groups and the predictor, accounting for only 2% of the between group variability. The cross-validated classification showed that overall 16% were correctly classified. A summary of the collapsed MBTI clarity rating classification descriptive data is presented in Table 2.

Table 2

Descriptive data for collapsed MBTI clarity rating classification

Variable	*Mean*	*SD*	*Frequency*	*Percent*
Very clear	335	44.16	56	12.7%
Clear	320.85	41.61	146	33.2%
Moderate	317.44	40.55	129	29.3%
Slight	317.16	42.90	109	24.8%
Total	320.74	42.20	440	100%

In order to gain a better understand how the overall (collapsed) MBTI preference clarity category (very clear, clear, moderate, and slight) related to the LEP's cognitive complexity index score (CCI), a follow-up statistical analysis was performed. Specifically, a one-way ANOVA utilizing the four categorical levels of the overall (collapsed) MBTI preference clarity category (very clear, clear, moderate, and slight) as the independent variable and the continuous LEP CCI score as the dependent variable was performed. The LEP CCI differed significantly across the four MBTI preference categories (very clear, clear, moderate, and slight), $F(3, 436) = 2.687$, $p = .046$. Tukey post-hoc comparisons of the four groups indicate the very clear (vc) group ($M = 335.00$, 95% CI [323.98, 346.02] gave significantly higher LEP CCI scores than both the moderate (m) group [$M = 317.44$, 95% CI [310.18, 324.70] and the slight (s) group [$M = 317.16$, 95% CI [309.26, 325.05]. Other comparisons were not significant at $p < .05$.

DISCUSSION

Research Question 1

Research question 1 asked: Which combination of the MBTI preference dichotomies (E-I, S-N, T-F, J-P) best predicts LEP's cognitive complexity index score? Specifically, both the continuous S-N and continuous J-P MBTI preferences categories significantly contributed to the prediction of LEP's cognitive complexity index score. Because a purpose of this study was to explore the state-trait continuum by determining mathematical relationships between pre-existing state and trait instruments (i.e., the LEP and MBTI; respectively), this result supports the view that states and traits may be related. This result was previously hypothesized by Moore (1983, p. 12) who stated "finally, the issue of stage/style [LEP/MBTI; state/trait] interaction in cognitive development needs to be raised again. The two areas seem to be a distinct phenomena, yet a careful analysis of their implication for learning characteristics show areas of obvious overlap between the two frameworks … could be that there is sufficient overlap in the conceptual descriptions of the two models … that the two models are confounded."

Between the continuous S-N and continuous J-P MBTI preferences categories, the continuous S-N preference category demonstrated a stronger predictive capacity. Specifically, increased clarity towards the Intuition (N) end of the continuum was related to higher LEP scores/developmental levels. Conversely, increased clarity towards the Sensing (S) end of the continuum was related to lower LEP scores/developmental levels. This result was also previously suggested by Moore (1983, p. 12) who noticed "the apparent tendency for Intuitives [N on the S-N scale] to be overrepresented at position 4 [late multiplicity] while Sensors are under-represented." Regarding the J-P MBTI preference, increased clarity towards the Judging (J) end of the continuum was related to

higher LEP scores/developmental levels. Conversely, increased clarity towards the Perceiving (P) end of the continuum was related to lower LEP scores/developmental levels. There was not however a precedent in the literature reviewed suggesting that the continuous J-P MBTI preference scale in general would also be significantly related to cognitive developmental levels and cognitive complexity. Additionally, there was no literature precedent suggesting that the Judging end of the J-P continuum would be related to higher cognitive complexity.

On the other hand, the continuous T-F and continuous E-I MBTI preference categories did not significantly contribute to the prediction of LEP's cognitive complexity index score. Myers et al. (1998, p. 122) may have suggested this result when they stated, "social demands can also provide different pressures for men and women on the T-F dichotomy, men are encouraged more toward Thinking activities and women toward Feeling activities." In other words, the MBTI manual suggests a precedent that the T-F MBTI dichotomy can be influenced by what society imagines to be an appropriate preference based on one's demographics. In this way, could society in general and the culture of human services students more specifically, have created a confounding variable in this study? Human services students (the sample used for this study) could be argued to place a higher value on feelings (as opposed to thoughts). Consequently, the typically Jungian "no type is better" T-F dichotomy may have been polarized. Could a similar dynamic have occurred to the E-I preference category as well?

In summary, research question 1 found a significant predictive relationship between two MBTI trait/ personality scales (S-N and J-P) and the LEP's

state/developmental cognitive complexity index. This result supports the notion of a state-trait continuum.

Research Question 2

Research question 2 asked: To what extent does LEP's cognitive complexity index score predict the overall MBTI preference clarity category (very clear, clear, moderate, and slight)? The results supported the LEP cognitive complexity index's utility to significantly differentiate the collapsed MBTI clarity rating classifications (very clear, clear, moderate, and slight). This research question explored a possible shared dichotomous structure between the LEP and MBTI. Mathematical significance suggested a closer look at the relationship between the LEP's cognitive complexity index and the MBTI clarity rating classifications. Specifically, the clarity rating classification means (Table 2 and follow-up ANOVA) present a trend of increased clarity being associated with higher LEP's cognitive complexity index scores. In other words, very clear preference scores across the MBTI dichotomies are associated with higher cognitive complexity and developmental level. Conversely, both slight and moderate preference scores across the MBTI dichotomies are associated with lower cognitive complexity and developmental level.

This trend however was unexpected. Because dualism (a lower developmental level) has been associated with extreme "We-Right-Good vs. They-Wrong-Bad" (Moore, 2001, p. 3) thinking and decision making, it was hypothesized that lower LEP cognitive complexity indexes would be associated with very clear (more extreme) preference clarity classifications. Although the literature suggested many possible structures simultaneously functioning on the state-trait continuum [bi-modal, zero-point tri-modal,

polarized continuum (positive/negative), and Jungian continuum (positive/positive)], this trend suggests a focus on two structures in particular. These would be continuums built on polarized (positive/negative, good/bad, right/wrong, dualistic, or bi-polar) dichotomies compared against continuums built on Jungian (positive/positive, good/good, right/right, or relativistic) dichotomies. In this way, extreme decisions made on polarized (positive/negative) structures may be associated with lower developmental levels while more extreme decisions made on Jungian (positive/positive) structures may be associated with higher developmental levels. Consequently, functioning from persistently polarized (positive/negative) structures may result in "unstable, non-linear behavior in opinion formation and collective decision-making" (Flache & Torenvlied, 2001, p. 22). Conversely, functioning from Jungian (positive/positive) structures may encourage diversity, authenticity, and creativity [or any of the long list of positive traits highlighted by Seligman and Csikszentmihalyi, 2000].

In summary, research question 2 found a significant mathematical relationship suggesting that very clear preference scores across the MBTI dichotomies are associated with higher cognitive complexity and developmental level. Conversely, both slight and moderate preference scores across the MBTI dichotomies are associated with lower cognitive complexity and developmental level. Theses results support the notion of a state-trait continuum by suggesting that states and traits may be unified by dichotomous-continuums (i.e. continuous structures being built on either positive/positive or positive/negative dichotomous structures).

Implications for Positive Psychology

The literature suggested that positive psychology had encouraged state-trait continuum research in order to explore how states might develop into positive traits. The present study found two mathematically significant relationships between the LEP (a state instrument) and the MBTI (a trait instrument). These relationships support the notion of a state-trait continuum. Research question 1 found that both the continuous S-N and J-P preferences categories significantly contributed to the prediction of LEP's cognitive complexity index score. This shows how two specific MBTI scales (trait measures) relate to the LEP, states, and development in general. Although these findings are meaningful, it is the second relationship that may hold the strongest implications for positive psychology. Research question 2 utilized the MBTI scales as four examples of Jungian (positive/positive) dichotomous-continuums and found that very clear preferences across these Jungian dichotomous-continuums were associated with higher cognitive complexity and developmental level. This is in stark contrast to very clear preferences on polarized (positive/ negative) dichotomous-continuums being associated with dualism, conflict, lower cognitive complexity, and lower overall developmental level. Along these lines, the implication to positive psychology might be to conceptually explore the relationship between negative and positive experiences (whether states or traits, short-lasting or longer-lasting) as a bidirectional progression of structures, starting with polarized on one end and Jungian dichotomous-continuums on the other. This implication seems compatible with Linley, Joseph, Harrington, and Wood (2006) who while conceptualizing the positive and negative poles of the human condition stated, "by doing so, we do not mean in any way to imply or support the dichotomization of the human experience into positive and negative, in contrast, we view them as falling along a

continuum" (p. 3). In summary, these results supported the notion of positive

psychology's state-trait continuum. Furthermore, this study may suggest deeper

implications to not only conceptualize a progression (continuum) from momentary to

longer-term experiences (i.e., states to traits), but to simultaneously conceptualize a bi-

direction progression between negative and positive experiences in general.

Implications for Mental Health Counseling

The primary implication relates to the generalization of these results. From one

perspective, this study explored and found mathematical connections between the MBTI

and the LEP. From another perspective, this study supported the growing literature (from

many different fields) regarding the benefits of creating continuous structures between

previously unrelated, different, or dichotomous concepts. Furthermore, as it could be

argued that psychological research has focused more on negative experiences (as opposed

to the positive), it could also be argued that psychological research has focused more on

differences in human experience (as opposed to the similarity). If indeed an underlying

dichotomous-continuum exists that connects positive experiences with negative, short-

term experiences with long, and differences in experiences with the similarities, then this

structure would deserve increased research focus. The study of the dichotomous-

continuum could not only serve to focus research, but it may also facilitate the training of

new mental health counselors by streamlining the conceptualization, treatment planning,

and selection of interventions for clients. In this way, brought to full fruition, mental

health counseling could not only be on the forefront of continua research [which

literature suggests will play heavily in the pending DSM-V; Samuel (2001), Skodol et al.

(2011), and Widiger et al. (2005)] but also on the forefront of an empirically-based counseling-specific therapeutic model.

Limitations of the Study

There are possible limitations to this study that deserve to be identified. First is the possible fallibility of the instruments used (i.e., the LEP and the MBTI). If an intention of this study was to explore the state-trait continuum by determining mathematical relationships between a state instrument (LEP) and a trait instrument (MBTI), do these instruments truly measure states and traits? Are these the best instruments to explore this relationship? Additionally, as mentioned in the methodology section, both instruments have been questioned regarding reliability and validity. Could these possible issues be compounded when mathematically compared? The second limitation relates to the sampling method used. Specifically, the acquisition of participants by means of a concurrently taken undergraduate course could certainly generate possible confounding variables. Despite strict confidentially making it impossible for the corresponding instructor to know a participant's results, participants may still have felt the need represent themselves in a program-specific or socially favorable manner. On the other hand, because of confidentiality from the instructors, students may not have been fully motivated to thoughtfully complete the instruments. Additionally, this sample identified no individuals from the LEP's highest developmental stage (position 5, relativism). It is unclear if this truncation was a product of this particular population or a product of decreased numbers of individuals at higher developmental levels in general. Furthermore, because of the relatively large sample size used for research question 2 (n = 440), the statistically significance results may contribute

to theoretical understanding, but not translate to practical usefulness (as this model only accounting for 2% of the between group variability). Third, because of the exclusive use of the undergraduate student population, the results obtained have limited capacity to generalize to other populations. In summary, the use of these instruments, this sampling method, and this population represent possible limitations of the study.

Suggestions for Future Research

The results, implications, and limitations of this study suggest possibilities for future research. The first and most basic suggestion would be to replicate this study with a more representative sample. Although valuable, it may be difficult to acquire a sufficient sample size from the general public. Alternately, it may be easier and equally valuable to replicate this study using counseling clients. Specifically, it might be interesting to explore how various levels of mental health symptom severity relates to MBTI (personality) and LEP (developmental level) results.

The second suggestion relates to how social demands may influence the MBTI results. Specifically, these social demands may impact whether the particular MBTI preference scale (E-I, S-N, T-F, J-P) is conceptualized as a polarized or Jungian dichotomous-continuum. In order to shed light on these interactions, it may be valuable to replicate this study but include an instrument that measures three domains of demands. These domains could include: social demands, professional demands (in this case human services or counselors in training), and personal demands. Through this additional instrument, it could be determined to what degree the individual is influenced by each domain to perceive each MBTI preference scale along a polarized to Jungian

dichotomous-continuum. In this way, mathematical relationships between the MBTI, LEP, and domains of demands could be measured.

The third suggestion relates to exploring classic/time-honored dichotomies commonly used in counseling (other than those in the MBTI). This suggestion has three parts (Part A, B, and C). Part A would seek out these classic/time-honored dichotomies. This could be accomplished by a combination of literature review and qualitative questionnaires/interviews with professionals in the counseling field. Part B would follow the procedure from suggestion 1, but investigate the derived classic/time-honored dichotomies instead. Part C would seek out similarities and differences between the dichotomies. Exploring similarities would serve to group dichotomies within a domain. Exploring differences would serve to help define the various domains or relatively unconnected sub-sections within domains. Through repeated cycles of Parts A through C, this research would identify, classify, and synthesize both polarized and Jungian dichotomies. As a result, mental health counseling would have a powerful tool that connects positive experiences with negative, short-term experiences with long, and differences in experiences with the similarities. This tool could facilitate the training of new mental health counselors by streamlining the conceptualization, treatment planning, and selection of interventions for clients.

A Final Word on Dichotomies: 3-D Perspective

It may be fair to say that mental health counselors and psychologists are clearly motivated to better understand relationships. Along this line, a simple relationship might be symbolically represented as perspective A, perspective B, and the forces between them. Philosophically, it was the exploration of rudimentary

relationships like this that was at the heart of this study. I speculated that a better understanding of simple relationships might be generalizable to a better understanding of a multitude of different relationships. Specifically, these various relationships between A and B could be represented by various and possibly multiple dichotomous variables. On one end of the dichotomy is perspective A and on the other end is perspective B. Mental health counseling and psychology have numerous examples of such dichotomies (quantitative/qualitative, conscious/unconscious, nature/nurture, manic/depression, emic/etic, etc., as well as the dichotomies represented in the MBTI). Furthermore, in this study, the developmental progression of forces between dichotomous variables was conceptualized as the different stages of Perry's developmental model. Specifically, dualism was associated with conflict resulting from a perceived disconnect between A and B. The developmental progression then moved towards conflict resolution (relativism) as both A and B approached a mutual capacity to recognize the benefit of the other. If dichotomies and development are put together in this manner (along a dichotomous-continuum), it can be suggested that a large proportion of dichotomous conflicts might follow Perry's pattern of developmental progression (dualism, early multiplicity, late multiplicity, and relativism) towards resolution. In other words, the specifics of nearly any conflict could be described using various dichotomous variables, while the pattern of conflict resolution between these dichotomies might be predicted to follow the same pattern of developmental progression proposed by Perry.

Practically speaking, dichotomous-continua could benefit mental health counselors and their clients by offering a simple yet relatively comprehensive model for general conflict resolution. Specifically, if a client has a conflict, both the client and counselor could work together to identify a dichotomy (or a set of dichotomies) that best characterizes the conflict. This method of conflict classification might also be beneficial for case conceptualization and treatment planning. Afterward, both the client and counselor could review how Perry conceptualizes resolution. A strength-based approach might suggest an exploration of how the client arrived at resolutions in the past and relate these to Perry's model. Another consideration regarding the generalization capacity of this conceptualization relates to the benefits of repeated exposure of this technique. Consequently, clients may be positively reinforced by seeing how different or new conflicts can be resolved with dichotomous-continua skills with which they are already familiar. Even though this basic model of resolution can be easily generalized to a multitude of conflicts or relationship dynamics, this does not mean that dichotomy-specific interventions cannot be used. On the contrary, if for example a client struggled with outwardly directing emotions (associated with anger) as opposed to inwardly directing (associated with depression), the wealth of anger management research and associated interventions would be appropriate for use by the mental health counselor. In this way, the selection of time-honored dichotomies could direct the counselor to various theoretical models and specific interventions that are associated with that dichotomy. Lastly, the literature review suggested a meaningful analogy that clients and clinicians can use to envision the furthest-reaching benefits

of this model. Typically, human eyes see in 3-D. In this way, vision is a simple

relationship between perspective A and perspective B. When the two

perspectives/eyes work together however, they see in 3-D, which allows the

individual to assess their surroundings in a manner far superior than any one

perspective by itself. Consequently, through this simple analogy, clients can be

encouraged not only to cease their conflict (arguing over which eye is better), but

instead strive to generate a 3-D perspective between the variables that were

previously at odds. Ultimately, the end-goal of the dichotomous-continuum model is

not only to achieve conflict resolution, but furthermore to acquire an increased

perception that facilitates improved navigation through this world.

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APPENDIX A

Participant Demographic Sheet

Age: _____

Gender: Female   Male

        Transgender   Other (not specified): _____

Race/Ethnicity: African-American   Asian-American   Latin-American

        White/European-American Biracial/Multiracial   Other (not specified): _____

APPENDIX B

Conversion Table for MBTI Preference Scores (Myers & McCalley, 1986, p. 10)

E, S, T, or J			I, N, F, or P		
Difference in Points	Preference Score	Continuous Score	Difference in Points	Preference Score	Continuous Score
1	1	99	0	1	101
2	3	97	1	3	103
3	5	95	2	5	105
4	7	93	3	7	107
5	9	91	4	9	109
6	11	89	5	11	111
7	13	87	6	13	113
8	15	85	7	15	115
9	17	83	8	17	117
10	19	81	9	19	119
11	21	79	10	21	121
12	23	77	11	23	123
13	25	75	12	25	125
14	27	73	13	27	127
15	29	71	14	29	129
16	31	69	15	31	131
17	33	67	16	33	133
18	35	65	17	35	135
19	37	63	18	37	137
20	39	61	19	39	139
21	41	59	20	41	141
22	43	57	21	43	143
23	45	55	22	45	145
24	47	53	23	47	147
25	49	51	24	49	149
26	51	49	25	51	151
27	53	47	26	53	153

APPENDIX C

LEP's CCI Score Ranges and Corresponding Perry Positions

CCI Score	Perry Positions
200-240	Position 2
241-284	Transition 2/3
285-328	Position 3
329-372	Transition 3/4
373-416	Position 4
417-460	Transition 4/5
461-500	Position 5

APPENDIX D

Percentage of Respondents on MBTI Form M at Each Level of Preference

MBTI	Very Clear (vc)	Clear (c)	Moderate (m)	Slight (s)	Total
Extravert - Introvert (E-I)	9% *(vc E or I)*	25% *(c E or I)*	43% *(m E or I)*	23% *(s E or I)*	100%
Sensing - Intuition (S-N)	9% *(vc S or N)*	28% *(c S or N)*	42% *(m S or N)*	21% *(s S or N)*	100%
Thinking- Feeling (T- F)	9% *(vc T or F)*	21% *(c T or F)*	42% *(m T or F)*	28% *(s T or F)*	100%
Judging - Perceiving (J-P)	14% *(vc J or P)*	26% *(c J or P)*	37% *(m J or P)*	22% *(s J or P)*	100%
Average	10% *(vc average)*	25% *(c average)*	41% *(m average)*	24% *(s average)*	100%

VITA

Michael A. Keefer achieved a Bachelor's degree in Psychology in 1992 and a Master's degree in Psychology in 1998, both from Old Dominion University. In Colorado, he earned both a Certified Addiction Counselor III (CAC III) and a Licensed Professional Counselor (LPC) in 2005. In Virginia, he also received a LPC in 2008.

During approximately 20 years in the mental health field, he has engaged in numerous focal areas: sex offense, substance abuse, problematic family dynamics, potential homelessness, and severe mental health. Furthermore, in serving these populations and associated organizations, he has fulfilled many roles: direct care, therapist (individual, group, and family), supervisor, staff trainer, assessor, clinical supervisor, and administrator. Mike looks forward to the helping relationships that a PhD in Counseling Education and Supervision from Old Dominion University will afford him.