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A Validation Study of the Orientation Model

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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

A VALIDATION STUDY OF THE ORIENTATION MODEL

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

Brett David Wilkinson

College of Education and Behavioral Sciences
School of Applied Psychology and Counselor Education
Program of Counselor Education and Supervision

May 2016

This Dissertation by: Brett David Wilkinson

Entitled: *A Validation Study of the Orientation Model*

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in
College of Education and Behavioral Sciences in School of Applied Psychology and
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ABSTRACT

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The orientation model is a multidimensional measure of dual-processing capacities that incorporates four empirically-validated instruments taken from the existing literature on cognitive processing, attachment, empathy, and self-focused attention. As a strength-based conceptualization tool for humanistic counseling practices, the model is intended to provide counselors with a flexible means to assess non-diagnostic client attributes within a dispositional model of client cognitive processing patterns. Although humanistic principles often conflict with the use of quantitative instruments in clinical practice, the model is guided by the tenet that objective measures can effectively supplement clinical insight into client patterns of functioning. It thus serves as a means by which to bridge the gap between objective testing and the philosophical tenets upheld by humanistic counselors.

As such, this survey-based study examined the habitual use of dual-process tendencies using four established, non-clinical, and empirically-validated instruments: the Rational-Experiential Inventory (REI; Epstein, Pacini, Denes-Raj, & Heier, 1996), the Differentiation of Self Inventory–Revised (DSI-R; Skowron & Schmitt, 2003), the

Interpersonal Reactivity Index (IRI; Davis, 1980), and the Reflection-Rumination Questionnaire (RRQ; Trapnell & Campbell, 1999). The coherence of the orientation model rests on the presupposition that each of the subscales within the four instruments correspond with distinct dual-processing styles. The current study was designed to explore this possibility in order to validate the conceptual underpinnings of the orientation model itself.

Self-report responses from 375 college students were used to determine whether relationships grounded in dual-processing capacities exist among the disparate model variables. Canonical correlation and multivariate analysis of variance results suggest that the orientation model provides a descriptive framework for distinguishing self-perceived adaptiveness or perceptiveness from emotional vulnerability or sensitivity rather than providing an explanatory foundation linked to dual process theories. This interpretation is examined in relation to the dual-processing literature, and directions for future research and theory generation are suggested. Practical implications are discussed in terms of applying the model as a case conceptualization tool in clinical and supervisory settings, concerns related to potential misinterpretations of a thinking/feeling dichotomy in clinical practice, and the therapeutic value of the instruments outside a dual-process framework.

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Arthur Schopenhauer once wrote that “Honor is, on its objective side, other people’s opinion of what we are worth; on its subjective side, it is the respect we pay to this opinion.” Proper professional acknowledgements stem from the latter, even as they pay tribute to those words and deeds that convey the former. I am greatly indebted to all those who have supported and inspired my academic journey thus far. As for this final step in particular, I would like to thank my doctoral committee for their support in the dissertation process. I would also like to express the deepest gratitude to my research advisor, Dr. Heather Helm, for her relentless encouragement, certitude, and guidance throughout both the writing process and my doctoral studies.

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Formal definitions of honor are quickly supplanted by unfathomable depths of devotion, loyalty, and gratitude when it comes to my family. To my sister and nephew, my dearest mother, and my father and stepmother: there are no words to express my appreciation for your unconditional love, support, and generosity in this life. My journey has been nothing if not molded by the shape of your hearts and fired in the hearth of our memories. Finally, to my wife and daughter: you are the seeds of my eternal hope, the gentle currents that carry my limitless spirit, and the wellsprings of my infinite joy and happiness on this earth. May we laugh, play, and dance together always.

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CHAPTER I

INTRODUCTION

The assessments typically taught in counselor education courses and used by counselors in the field span five primary areas of clinical interest (Neukrug, Peterson, Bonner, & Lomas, 2013): diagnosis and psychopathology, symptom severity, problem behaviors, intelligence, and personality-based career compatibility. Valuable as these categories are in terms of illuminating general trait and behavioral tendencies among clients, they provide little relevant information regarding subtler client processes of interpretation, internalization, and interaction (Wilkinson, 2015). Clinical assessments of problem behaviors, symptom severity, and diagnostic criteria tend to emphasize client limitations rather than strengths (Elkins, 2007). Furthermore, the usefulness of personality testing has arguably limited practical usefulness for counselors (Epstein, 2010), while intelligence measures are primary of use with relatively narrow and specific populations (Seligman, 1996).

This study was designed to validate the conceptual tenets of the orientation model as a strength-based conceptualization framework for humanistic counselors (Wilkinson, 2015). The model is a versatile assessment tool designed to provide counselors with a means to recognize and address important client attributes within a humanistic and

existential framework (Wilkinson, 2015). In this respect, it asserts that insight into the dispositional tendencies of clients can provide counselors with relevant information on how clients interpret their experiences in and of the world. Constructs related to cognitive processing, attachment, empathy, and introspection are assessed using already established and well-validated measures developed by psychologists to ascertain within-individual differences. Each of the four measures were originally constructed using confirmatory factor analysis to test theoretically-grounded hypotheses. As such, the orientation model benefits from being a psychological model “situated within a coherent, intraindividual theoretical framework” (J. Block, 2010, p. 5) that lends itself to applied counseling practices.

As a supplement to counseling practice, the orientation model provides a flexible means by which to ascertain how dispositional variations in cognitive and emotional processing influence client experiences in the world. The model proposes that unique, client-specific processing patterns result in distinctive presenting styles and behavioral consequences. Furthermore, it suggests that each of the measures of cognitive processing, attachment, empathy, and introspection used in the model actually gauge dispositional variations that align with the tenets of dual-process theories. Dual-process theories provide the overarching theoretical framework for the orientation model and suggest that two distinctive yet highly interactive cognitive processing systems - analytic and experiential - operate within the human experience. The orientation model asserts that by harnessing measures that distinguish between the preferential, habitual use of these dual-processing tendencies, counselors can effectively supplement their clinical observations

and judgments with valuable assessment data that informs case conceptualization practices and augments treatment planning.

Dual Process Theories

The general tenets of dual-process theory provide the theoretical foundation for the orientation model, serving as the conceptual glue that binds the different constructs and measures into a cohesive whole. Supportive evidence in both developmental (Reyna & Rivers, 2008) and affective (Panksepp, 2003) neuroscience lends heightened credibility to the burgeoning experimental and theoretical work conducted on dual-process concepts in social and cognitive psychology (Epstein, 2014; Evans, 2010). In terms of evolutionary biology, the more recently developed analytic system involves the controlled and rational processing capacities of the neocortex, as contrasted with the more primitive, automatic, and affect-oriented experiential processing of the limbic system (Epstein, 2014; Evans, 2010; Panksepp, 1998). Each system is therefore related to unique processing capacities. Analytic-rational cognitive processes are logical, intentional, explicit, conscious, linguistic, and slow whereas experiential-intuitive cognitive processes are associative, automatic, implicit, preconscious, symbolic, and fast (Stanovich, West, & Toplak, 2014).

Despite their unique capacities, however, the analytic and experiential systems are highly integrated. In fact, such dichotomous divisions belie the level of integration necessary for cognition to be evolutionarily adaptive, as explicit cognitive representations of the world rely upon primary experiences such as implicit attitudes and feelings in order to ground a cognitive simulation (Stanovich et al., 2014). Similar conjectures about the integrative nature of dual-processing systems is found in philosophy of mind, as the interdependence of access and phenomenal consciousness parallel discussions held among

dual-process theorists (Chalmers, 1996; N. Block, 1995). The implications of a lack of integration is similarly discussed across both fields, with concerns levied in regards to how the lack of “theory of mind” among individuals on the autism spectrum might be a consequence of uncontrolled analytic and experiential decoupling (Chalmers, 1996; Hwang, Evans, & Mackenzie, 2007; Stanovich et al., 2014).

Yet the distinction between the two systems remains leverageable for the purposes of counseling precisely due to the integrative nature of analytic and experiential processes (Epstein, 2014). From Plato (380 BC/1974) to William James (1890/1950), the duality of thinking and feeling has historically served to illuminate the remarkable dispositional differences we observe among individuals. Viewed on a continuum, habitual tendencies towards either rational or emotional processing manifest in distinctive ways that counselors can easily recognize from clinical experience. It is this thinking-feeling dichotomy that many counselors utilize to design individual treatment approaches that fit the unique needs of particular clients (Epstein, 2014). So while the complexities of dual-processes are granted due respect in the orientation model, the thinking-feeling dichotomy remains a viable and pragmatic way to connect counselor observations with assessment methods to inform clinical judgments, case conceptualizations, and treatment decisions (Wilkinson, 2015).

By focusing on broader dispositional trends rather than specific or narrow traits and behaviors, the orientation model eschews simplistic labels in favor of rich and dynamic descriptions of intrapersonal experience. In combination, the four constructs of cognitive processing, attachment, empathy, and introspection lend insight into how clients uniquely experience and manifest the thinking-feeling dichotomy in their own

lifeworld (Wilkinson, 2015). Individual variations across these dual-processing tendencies, stemming from the habitual use of particular coping strategies (Evans, 2010), are a consequence of the reinforcement and activation of either analytic or experiential processes under conditions of stress (Pacini & Epstein, 1999). In accord with humanistic principles, the model thus provides a holistic perspective on how clients subjectively interpret experiences through the lens of habitual cognitive patterns, and it actively avoids the use of symptom or diagnosis-based language (Greenberg, Elliot, & Lietaer, 2003). Counselors can utilize such an assessment-derived analysis of client patterns to choose treatments that capitalize on individual strengths within a descriptive framework without resorting to narrow categorizations or labels.

Design of the Orientation Model

For each of the four constructs and corresponding measures, two subscales are used to distinguish between analytic and experiential tendencies. These relate to rational and intuitive cognition styles, emotional cutoff and emotional reactivity attachment styles, cognitive and emotional empathy styles, and reflective and ruminative introspection styles (Wilkinson, 2015). The only measure used in the orientation model that was designed based upon a dual-process theory framework is the Rational-Experiential Inventory (REI; Epstein et al., 1996), used to distinguish between rational and intuitive styles of cognition. The other three measures were developed independently of dual process theorizing, and so the orientation model presupposes that each of their sub-measures correspond with distinct dual-processing styles. The current study was therefore designed to explore this hypothesis in order to validate the conceptual underpinnings of the orientation model itself.

The therapeutic value of relating these constructs to dual-processing tendencies arises from the way in which their distinctive combinations can be used as a lens through which to understand client interpretations of experience. In this manner, each construct represents a continuum of growth-potential that also sheds light on the motivational factors underlying the presenting concerns and related behaviors of clients (Cervone, 2005). For a client that presents with a history of depression and unsatisfactory relationships, for example, the course of treatment is going to vary depending on a multitude of dynamic factors. This is a typical scenario in which the counselor has a vague understanding of client presenting concerns and history, and proceeds with the intention of discovering important details about the client in order to develop an appropriate treatment plan. However, the initial course of treatment will look significantly different if the counselor knows this client experiences high levels of cognitive processing with moderate to low levels of experiential processing, high levels of emotional cutoff, relatively low levels of cognitive empathy, moderate to high levels of emotional empathy, and rumination tendencies. Each of these scores provide important descriptive information regarding how this client interprets their life experience, relates to others, and copes when under stress.

This client is likely to be a highly analytical ruminator with a limited ability to grasp the viewpoints of others and a history of cutoff relationships, but a relatively high degree of sensitivity to, and empathic felt-sense of, compassionate awareness. Put another way, this client operates within a distinctive lifeworld experience: from a rational viewpoint, avoidant of emotional conflict, limited in their cognitive perspective-taking yet sensitive to emotional cues, and liable to chronically introspect on negative past

experiences. The primary benefit of this assessment is twofold: it highlights the strengths of this client and it lends the information immediately to the counselor. Our hypothetical client's rationality and emotional empathy in particular are primed for clinical use, and also serves as additional fodder for the building of counselor empathy towards the client. It further allows the counselor to develop a rich conceptualization early in the therapeutic process, thus lending itself to an intentional verification process rather than an arbitrarily exploratory one.

At the same time, the orientation model does not presuppose that a particular course of treatment should derive from the information highlighted in the assessment. The model itself is fundamentally atheoretical, serving as a means to clarify the dispositional tendencies of clients by highlighting important factors that contextualize presenting concerns and behaviors. As a functional apparatus for case conceptualization purposes, it maintains that treatment should proceed according to the clinical judgment and expertise of the counselor. So while the model is designed within a humanistic-existential framework, it is important to recognize that the assessment can be used across any and all theoretical orientations.

However, the model does provide a conceptually coherent framework for humanistic and existential counselors who may be otherwise disinclined to utilize assessments as a therapeutic tool. Since the accurate identification of dispositional styles is arguably a key component of clinical decision-making across theoretical orientations (Wilkinson, 2015), the use of assessments to augment the selection of therapeutic strategies, techniques, and interventions does not depart significantly from the standard process of making clinical judgments. In this respect, the orientation model can be

designated as an atheoretical, strengths-based conceptualization tool designed within an existential-humanistic conceptual framework (Wilkinson, 2015). Whether used as a supplement for situation-specific clinical judgments or as a template for building humanistic case conceptualizations, it grants counselors an opportunity to gain insight into important features of client experience and style of interpretation. By means of its validation in this study, a new and valuable tool for counselors in practice may become accessible.

Problem Statement

Dual-process theories have been predominantly used as a theoretical basis for exploring phenomena such as implicit memory (Smith & DeCoster, 2000), decision making (Kahneman, 2011; Kahneman & Frederick, 2002), deductive reasoning (Evans & Over, 1996), and implicit learning (Reber, 1993; Sun, Slusarz, & Terry, 2005) in cognitive psychology, as well as social judgment (Bargh, 2006, Wilson, 2002), persuasion (Chaiken, 1987; Cacioppo, Petty, Kao, & Rodriguez, 1986), stereotypes (Devine, 1989; Duckitt, Wagner, Du Plessis, & Birum, 2002), and implicit attitudes (Gawronski & Bodenhausen, 2006; Wilson, Lindsey, & Schooler, 2000) in social psychology. Attempts to directly apply dual-process theories in a therapeutic context have been either within complex, global personality assessment frameworks that require counselors to adopt the entire conceptual system (Epstein, 2014), or in relation to highly specific topics such as bereavement (Schut, 1999; Stroebe & Schut, 2010) and perfectionism (Slade & Owens, 1998).

In an effort to bridge the gap between dual process theories and humanistic counseling, the orientation model seeks to highlight the value of measuring specific dual-

processing dispositions of clients so as to further enhance case conceptualization practices in therapy (Wilkinson, 2015). Guided by general dual-process theories and applied within an existential framework, the orientation model was designed to benefit the therapeutic process by giving counselors of the humanistic persuasion a practical tool for assessing important dispositional traits in clients without resorting to diagnostic labels or other reductionist methods (Wilkinson, 2015). However, the relationships among the variables used in the orientation model have not yet been assessed. Validating such a humanistic-existential assessment model for clinical use will grant counselors an opportunity to utilize dispositional assessments that lend insight into specific characteristics that may serve to either impede or facilitate client growth towards the fulfillment of basic psychological needs and adaptive functioning.

Rationale

Although the use of assessment instruments among counselors is on the rise (Cashel, 2009), many practitioners and counselor educators maintain that psychological testing and assessment is incongruent with the principles guiding counselor identity (Neukrug, Peterson, Bonner, & Lomas, 2013). This may be due in no small part to a sense that quantitative measures – typically designed to operate as an objective tool for assessment and diagnosis - may somehow detract from the personal, non-judgmental nature of the positive therapeutic relationship (Clark, 2001). According to a recent inquiry into the use of testing instruments by counselors in the field, there appears to be a high prevalence of test use but at a very low average frequency (Peterson, Lomas, Neukrug, & Bonner, 2014). This trend holds across counseling sub-specialties, as the types of assessments administered differ based on area of specialization and yet the

average use of assessments in general remains about the same (Peterson et al., 2014). So while counselors across various specializations incorporate some testing and assessment in their clinical practices, they tend to do so relatively rarely.

In regard to counselor training, multiple studies indicate that counselors feel unprepared to conduct assessments in the field (Mellin, Hunt, & Nichols, 2011; Villalba, Latus, & Hamilton, 2005) while counselor educators appear largely uninterested in teaching assessment courses (Davis, Chang, & McGlothlin, 2005). Uncertainty abounds as to the types of assessments that should be taught in masters-level programs; an issue which, it has been suggested, should be addressed in a rigorous and standardized manner to ensure students are adequately prepared for clinical practice (Peterson, Lomas, Neukrug, & Bonner, 2014). However, both counselors and counselor educators alike tended to regard the 2001 assessment standards set forth by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) as one of the three least beneficial core curriculum standards (McGlothlin & Davis, 2004). The 2009 CACREP standards remained just as broad and tentative in its suggestions on the use and teaching of assessments as its predecessor (Neukrug, Peterson, Bonner, & Lomas, 2013), and the 2016 core standards appear to differ little in this respect. So while there is widespread agreement among counselor educators that assessment courses are an important part of training, there is little agreement as to which tests and measures should be emphasized and how best to prepare future counselors for conducting assessments in the field (Neukrug et al. 2013).

Empirical research suggests that seven categories of assessment are particularly valuable for counselors across a variety of specializations and clinical roles, including

personality, projective, career, intelligence/cognitive, educational/achievement, clinical/behavioral, and environmental/interpersonal (Peterson, Lomas, Neukrug, & Bonner, 2014). Within this array of categories it appears those assessments taught by counselor educators span five practical areas of clinical need including symptom severity, diagnostic criteria and psychopathology, problem behaviors, general intelligence, and personality-based career compatibility (Wilkinson, 2015). As implemented by practitioners, these areas of inquiry are quite useful in terms of providing relevant clinical information on client-specific traits and behaviors. However, personality tests have been eschewed as insignificant contributors to counseling practice (Boyle, 2008; Epstein, 2010), and general intelligence tests have been similarly called into question (Seligman, 1996), while measures of diagnostic criteria and psychopathology, symptom severity, and problem behaviors tend to overlook client strengths in favor of limitations (Elkins, 2007).

For the purposes of clinical practice, objective measures are designed to provide counselors with additional and supplementary insight into client patterns of functioning. The elusive qualities of psychological experience and human behavior in general have made such assessments a vital part of the counseling field (Scholl, McGowan, & Hansen, 2012). Yet the philosophical tenets guiding humanistic counseling are viewed by many as running contrary to this purpose (Brown, 1972). It has been asserted that psychometric procedures are not only reductionistic and antithetical to the humanistic endeavor, but that humanistic practices “will always show a preference for qualitative and human science research” (Greening, 2002, p. 5). Others have also noted that assessment and testing are widely “viewed as incongruent with the qualitative, postmodernist perspective

underlying human science methodologies” that is preferentially adopted by those of the humanistic persuasion (Friedman & MacDonald, 2006, p. 512).

Insight into the subjective experience of the client tends to be favored over objective analysis, whereby the individual is regarded as being figuratively reduced to a set of a circumscribed categories or labels (Clark, 2001; Scholl, Ray, & Brady-Amoon, 2014). Furthermore, the humanistic drive to connect with “the person of the client” does not naturally lend itself to the use of objective tests and measures insofar as these means of assessment are viewed as a way to inadvertently undermine the perceived agency of clients (Friedman & MacDonald, 2006). Yet while this may anecdotally appear to be a relevant concern considering the influence of judgment biases on clinical decision-making (Wood & Tracey, 2009) and therapeutic outcomes (Spengler & Strohmer, 1994), no significant evidence supports the notion that assessment use negatively influences how counselors engage, support, or regard their clients (Friedman & MacDonald, 2006).

Alternatively, some psychologists espouse the potential benefits of developing humanistic testing and assessment methods despite the philosophical conflicts perceived as inherent by opponents of this suggestion (Friedman & MacDonald, 2006). Such a discussion is conspicuously absent from the humanistic counselor education literature, despite numerous calls for a greater degree of assessment and testing integration into counselor training as a whole (Balkin, 2014; Naugle, 2009; Neukrug et al., 2014). Considering the relatively high number of self-identifying humanistic, existential, and person-centered counselor educators within the field (Calley & Hawley, 2008), this lack of discourse would seem to represent a significant oversight. It may also provide an explanation for why assessment and testing remain under-emphasized in master's-level

training. If counselor educators and researchers are at some level ideologically opposed to psychometric testing due to their humanistic inclinations, then it stands to reason that the field would place less active emphasis on training in this area. As such, this issue may actually be a consequence of an implicit rather than explicit bias against tests and measures.

Humanistic counselors indelibly seek to preserve the tenets of humanistic philosophy by engaging in practices that emphasize concepts such as subjectivity, growth, agency, relationships, and holism (Friedman & MacDonald, 2006). Hesitancy or outright rejection of the use of assessment instruments is thus founded upon some sense that objective testing conflicts with these basic humanistic tenets, particularly stemming from resistance to the notion of the counselor behaving as an expert. To properly combat this concern, Friedman and MacDonald (2006) suggest that the assessment process should be interactive, facilitate growth-oriented discussions, and rely upon client feedback and clarification. Fischer (1979) similarly noted the importance of approaching assessment procedures as a descriptive rather than a categorical process in view of the “situated intentionality” of clients (p. 116). In other words, testing should be used to augment clinical understanding such that it may further inform the primary client disclosures of subjective experience rather than serve as an objective substitute.

With an eye towards building a humanistic assessment framework for the purposes of clinical case conceptualization, Wilkinson (2015) constructed the orientation model as a means by which to bridge the gap between objective testing and the philosophical tenets upheld by humanistic counselors. It incorporates four empirically-validated and well-established measures developed by psychologists using confirmatory

factor analysis to test hypotheses within pre-established theoretical frameworks and to examine specific dispositional variables within individuals. This procedure for determining within-individual differences contrasts with those personality measures which use exploratory factor analysis to analyze between-individual differences from an atheoretical vantage point (Boyle, 2008; Cervone, 2005).

As noted by the eminent psychologist Jack Block (1995), properly designed psychological models should be “situated within a coherent, intraindividual framework” rather than be “overly preoccupied with the study of interindividual differences” (p. 210). The orientation model was explicitly designed to serve as just such a client-specific framework for humanistic counseling (Wilkinson, 2015). While its basic conceptual foundation has been explored, the model's validity remains in question. The purpose of this study is thus to validate the orientation model through quantitative methods to determine the relationships among the model’s four empirically-validated psychological measures. It is thereby proposed that gaining insight into potential relationships among the orientation model's four constructs of cognitive processing, attachment, empathy, and introspection can result in an effective case conceptualization model which supplements not only humanistic and experiential counseling approaches in particular, but counseling practice more generally as well.

Statement of Purpose

The purpose of this study is to test a case conceptualization model of dispositional factors and an accompanying assessment tool that can be used by counselors to assess client strengths and growth areas early in the therapeutic process. This survey-based study will examine the habitual use of dual-process tendencies across four important

dimensions of functioning, including cognitive processing styles, attachment styles, empathy styles, and introspection styles (Wilkinson, 2015). Four corresponding, empirically-validated surveys will be used to measure these dimensions: the Rational-Experiential Inventory (REI; Epstein, Pacini, Denes-Raj, & Heier, 1996), the Differentiation of Self Inventory–Revised (DSI-R; Skowron & Schmitt, 2003), the Interpersonal Reactivity Index (IRI; Davis, 1980), and the Reflection-Rumination Questionnaire (RRQ; Trapnell & Campbell, 1999).

Research Questions

- Q1 Is there a relationship between paired constructs for the cognitive orientation (as measured by the REI), the attachment orientation (as measured by the DSI-R), the empathic orientation (as measured by the IRI), and the introspective orientation (as measured by the RRQ)?
- Q2 Is there a relationship between analytic processes and experiential processes as multi-operationalized in the variable sets across the REI, DSI-R, IRI, and RRQ?
- Q3 How do attachment anxiety and attachment avoidance, as measured by the DSI-R, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?
- Q4 How do cognitive empathy and emotional empathy, as measured by the IRI, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?
- Q5 How do reflective introspection and ruminative introspection, as measured by the RRQ, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?

Definition of Key Terms

Dual-Processing

For the purposes of this study, dual processing refers to the theorized notion that “humans operate within two information processing systems, an ‘experiential system,’ which automatically learns from experience, and a ‘rational system,’ which is a verbal reasoning system” (Epstein, 2014, p. 3). It further indicates a dispositional tendency to employ either rational or experiential methods of cognitive processing under conditions of stress (Pacini & Epstein, 1999). The rational system is defined as “intentional, analytic, primarily verbal, and relatively affect free” while the experiential system is defined as “automatic, preconscious, holistic, associationistic, primarily nonverbal, and intimately associated with affect” (Epstein et al., 1996, p. 391). Although the dual processing systems generally operate in tandem, stress tends to elicit the preferential, dispositional use of one system or the other as a conditioned response.

Dispositional Attachment

For the purposes of this study, dispositional attachment refers to the habitual use of emotional cutoff and emotional reactivity as coping strategies under conditions of interpersonal stress (Wilkinson, 2015). Based on Differentiation of Self Theory (DST, Bowen, 1978), emotional cutoff and emotional reactivity are viewed through the lens of dual-process theory as dispositional attachment tendencies that connect with the rational and experiential cognitive systems, respectively. Psychological self-differentiation enhances aspects of cognitive flexibility and affective resilience that support healthy relational boundaries and coping capacities (Bowen, 1978). Maladaptive emotional and interpersonal consequences arise from the dispositional attachment tendencies of

emotional cutoff and emotional reactivity, including issues related to trust, intimacy, and autonomy (Skowron & Dendy, 2004).

Dispositional Empathy

For the purposes of this study, dispositional empathy refers to the habitual use of cognitive and emotional empathy as adaptive processing strategies in the formation and interpretation of interpersonal relationships (Wilkinson, 2015). Empathy denotes a form of cognitive understanding of, or emotional sensitivity towards, the experience of others (Davis, 1983; Strayer, 1987). Cognitive empathy involves the mental or psychological ability to vicariously experience the perceptual perspective of others (Davis, 1996; Strayer, 1987) while emotional empathy involves an affective ability to vicariously experience the immediate felt sense of others (Davis, 1980; Gendlin, 1974). An ability to experience both forms of empathy is empirically related to healthy interpersonal functioning and pro-social behavior (Baron-Cohen, 1995) and contribute to the implementation of effective coping strategies (Davis, 1996; Long & Andrews, 1990).

Dispositional Introspection

For the purposes of this study, dispositional introspection refers to the habitual use of reflective and ruminative styles of self-focused attention under conditions of stress (Wilkinson, 2015). Reflective self-focus denotes a tendency to intellectually analyze current, past, and potential future experiences, and is motivated by curiosity (Trapnell & Campbell, 1999). Ruminative self-focus involves the tendency to chronically assess current, past, or potential future experiences for threats, and is motivated by self-preservation (Trapnell & Campbell, 1999). While reflective introspection is associated

with cognitive distancing from emotional experience, ruminative introspection is related to affective immersion in the processing of negative emotions (Kross, Ayduk, & Mischel, 2005).

CHAPTER II

LITERATURE REVIEW

In this chapter, the review of literature includes the origins, developments, and conceptual foundations of modern dual-process theories across cognitive, social, and personality psychology. Major theoretical writings and research studies related to dual-process theories are summarized. A thorough exploration of both the current tripartite model of dual-process theory (Stanovich, 2012) and cognitive-experiential theory (Epstein, 2014) paves the way for examining the theoretical and practical grounding of the orientation model (Wilkinson, 2015). The four constructs and concomitant theories included in the model are discussed in detail and potential implications of the model as a case conceptualization tool for humanistic and existential counseling are analyzed.

Dual-Process Theories

The histories of philosophy and psychology are replete with inquiries into separable aspects of the human mind. From the tripartite divisions of reason, spirit, and appetite in Plato's *Republic* (380 BC/1974) to the dualistic view of conscious and unconscious set forth by Freud in *The Interpretation of Dreams* (1900/1953), we have long sought to understand mental experience in terms of distinctly functioning components. However, the origins of a modern dual-process perspective on information

processing can be traced most clearly to psychologist William James (1890/1950), who proposed that human thought involves both true reasoning and association. He maintained that these are interdependent and facilitative conditions of thought, albeit spontaneous in the case of associations and voluntary in the case of reasoning (James, 1890/1950). Eschewing the psychoanalytic view that the unconscious is a hidden entity of the mind, James asserted that some thoughts become subconscious by means of habituation inasmuch as they no longer require direct conscious attention yet arise under specific facilitative conditions (Weber, 2012).

Dual-process theories came to prominence in psychology once again nearly a hundred years later with Evans' (1984) two-stage theory of human inference distinguishing heuristic from analytical processes. Modern dual-process approaches have sought to explain various behavioral outcomes by delineating two mental systems according to functionally-distinct yet interdependent information processing capacities (Sloman, 2014). While the *domain-specific theories* seek to identify specific content areas in which dual-processing phenomena occur as input-output relations, the generalized *dual-system theories* seek to identify broader principles of human thought that subsume those domain-specific accounts (Gawronski, Sherman, & Trope, 2014). By providing a generalized account of higher-level cognition, *dual-process theories* serve as a conceptual umbrella under which both domain-specific phenomena and dual-system models of behavioral tendencies are explained and understood.

The distinction between dual-process theories as a general account of mental phenomena and dual-system theories as a specific account of mental architecture is of particular interest herein. Both conceptually and chronologically, general dual-process

theories precede dual-system theories, even as the latter have become increasingly prominent across various fields of psychology such as social cognition, learning, reasoning, and decision-making (Frankish & Evans, 2009). The current relevance of dual-processing across these specialty areas has been largely due to the rise of dual-system theories over the past twenty years (Evans & Stanovich, 2013). Rather than view these as fully independent approaches, however, it is perhaps more beneficial to recognize that dual-system theories attempt to enhance the general dual-process framework by introducing additional features that provide a greater degree of specificity to each system (Frankish & Evans, 2009).

Dual-process theories make a clear distinction between two processing systems, but invoke no explanations as to how these systems relate either to one another or to other aspects of cognition. Generally speaking, type 1 processes are “characterized as fast, effortless, automatic, nonconscious, inflexible, heavily contextualized, and undemanding of working memory”, whereas type 2 processes are “slow, effortful, controlled, conscious, flexible, decontextualized, and demanding of working memory” (Frankish & Evans, 2009, p. 1). In this respect, dual-process theories seek to describe the basic capacities of type 1 and 2 processes as observed in experimental testing, but refrain from suggesting how they might relate to some of the more dynamic aspects of human cognition (Evans & Stanovich, 2013; Gawronski, Sherman, & Trope, 2014). There is little room for extrapolation in the descriptive approach of dual-process theories that seek only to delineate between two types of cognitive processing capacities.

Dual-system theories, on the other hand, are far more inclusive and complex. Drawing upon far reaching fields of scientific inquiry, dual-system theories typically

make reference to ‘System 1’ and ‘System 2’ processes rather than types so as to emphasize their evolutionary interdependence in human cognition (Stanovich, 2004). While allusions to evolutionary theory are but one hallmark feature of dual-system theories, it serves to highlight the movement away from mere description and towards advanced explanations of the role and features of the dual processing system. In effect, System 1 has been described as an intuitive, pragmatic, associative, implicit, and evolutionarily old processing capacity that is independent of general intelligence and shared with animals (Frankish & Evans, 2009). In contrast, System 2 is typically characterized as a reflective, logical, rule-based, explicit, and evolutionarily recent processing capacity that is linked to general intelligence (Frankish & Evans, 2009). Extending well beyond the confines of description, dual-systems theories seek to provide a comprehensive account of how the systems relate, differ, and combine to explain a diverse array of human cognitive processing capacities.

For the purposes of this dissertation, the phrase *dual-process theory* will be used in reference to both the general dual-process theories and the more specific dual-system theories, as suggested by Frankish and Evans (2009) for convenience and clarity. Since dual-system theories are meant to expand upon the foundation established by dual-process theories without deviating from those basic premises, this equivocation should provide readers with a more consistent and coherent understanding of the ideas set forth herein as a matter of basic continuity. However, it should be reiterated that the approaches remain distinctive in terms of how far they are willing to go in their speculations, despite the fact that dual-process and dual-system accounts originate from the same basic, underlying tenets. While these nuanced distinctions are surely important for advanced

theoretical work in the social and cognitive specialization areas that explore dual-process structures and functions, it has been suggested by several dual-process researchers that the conceptual underpinnings of both are sufficiently related to warrant a merging of their ideas for the purpose of applied practice in counseling and psychotherapy (Anchin, Singer, & Magnavita, 2016; Epstein, 2014).

Modern History of Dual-Process Theories

Although dual-process theories gained widespread recognition as a foundational concept in the psychological sciences with Evans' (1984) two-stage theory of human inference, at least one major researchers was exploring related concepts more than a decade earlier. In studying differences between implicit and explicit learning beginning late in the 1960's, Reber (1993) proposed that two distinct processing systems guide human learning and decision-making. He further suggested that a 'cognitive unconscious' processing system might explain how memories are acquired without explicit awareness that learning has taken place (Reber, 1993). Although there has been considerable debate as to whether implicit learning occurs with or without some degree of explicit awareness (Shanks & St. John, 1994; Redington & Chater, 2002), current neuropsychological findings lend support to the idea that human memory functions across multiple and distinct neurological systems rather than within a unified or centralized system (Carruthers, 2006).

While the work of Reber (1993) has often been cited as an early influence on dual-processing ideas, it was a series of experiments conducted on deductive reasoning tasks that provides the most direct foundation for modern dual-process theories. Seeking to explain discrepancies between behaviors and introspective reports similar to those

observed by Nisbett and Wilson (1977) in their seminal article on deductive reasoning, three separate experiments were launched to explore deductive reasoning fallacies using the famous Wason (1966) selection task. Whereas the first provided supporting evidence for a matching bias in deductive reasoning (Evans & Lynch, 1973), the second revealed that participants tend to explain their selection task choices in quite rational terms despite the fact that a conditional, non-logical matching bias actually guided those choices (Wason & Evans, 1975).

This unexpected outcome led to renewed theorizing on the underlying mechanisms at work in those deductive reasoning tasks that invoke non-logical biases yet are accompanied by the illusion of logical decision-making (Evans, 1977). The explanation proposed by Wason and Evans (1975) was that the introspective reports made by participants were actually *post hoc* rationalizations, indicating that the matching bias associated with the Wason selection task is an unconscious response process distinct from the rational deductive process activated in terms of participant rationalizations. The seminal study published two years later by Nisbett and Wilson (1977) on discrepancies between observable participant behaviors and introspective reports served to bring widespread scientific attention to this very gap between implicitly-primed cues and explicitly-evaluated attributions.

The implication of these findings in relation to dual-process accounts of cognition were not fully realized until the development of the two-stage theory of human inference (Evans, 1984) and then, more comprehensively, the heuristic-analytic theory of reasoning (Evans, 1989). During this period, dual-process accounts of various domain-specific areas of social cognition came to prominence, including specific theories of persuasion

(Chaiken, 1987; Petty & Cacioppo, 1986), dispositional attributions (Gilbert, 1989; Trope, 1986), impression formation (Brewer, 1988), and prejudice (Devine, 1989). However, it was Evans (1984, 1989) who provided the first general dual-process theory account of human reasoning and decision-making as distinct types. Both theoretical accounts proposed that unconscious heuristics (i.e., type 1 processes) function as a rapid form of inductive cognitive processing whereas conscious analytical reasoning (i.e., type 2 processing) is a slower form of logical or deductive cognition.

The conflict between non-logical biases and logical processes was also being scrutinized around this time by the economists Tversky and Kahneman (1983) in terms of probabilistic judgment and cognitive fallacies. Examining how participants used intuitive heuristics to make decisions under circumstance of uncertainty, their research indicated that individuals tend to rely upon availability heuristics to make such decisions even when this violates the basic conjunction rule, or the rule of formal logic in which the probability of two independent events both happening cannot be exceeded by those events happening in combination (Tversky & Kahneman, 1983). Similar results in studies examining the rational theory of choice (Kahneman & Tversky, 1984; Tversky & Kahneman, 1986) and norm theory (Kahneman & Miller, 1986) eventually led to renewed theorizing on the heuristic and analytical elements at work in bounded rationality (Kahneman, 2003) and the seminal development of an economic dual-process model of decision-making (Kahneman, 2011).

It is notable that these ideas developed in separate scientific fields without due awareness of their simultaneity. Despite the obvious alignment with the tenets of dual-process theories, the Nobel Prize winning economist remained unaware of this

connection until after the turn of the century (Kahneman & Frederick, 2002). Similar events were unfolding for social cognition researchers attempting to explain discrepancies between social behaviors and professed attitudes, as well as the automaticity of social judgments (see Bargh, 2006, Wilson, 2002). Dual-process approaches to social cognition occurred independently of those advancements made in the psychological study of reasoning, as is often the case in disparate areas of research (Frankish & Evans, 2009). However, the basic tenets underlying each remains the same, with heuristic and analytical processes also used to explain the formation of attitudes, judgments, self-regulation, and attributions in social psychology (Bargh, 2006).

Conceptual advancements made by dual-process theories of social cognition appear primarily to be a result of the interests associated with this field of study itself. While research into deductive and inductive reasoning capacities emphasizes controlled studies of memory and learning, social cognition research naturally introduces a variety of confounding factors due to its emphasis on individual differences and situational conditions (Feldman, 2014). This provides researchers of social cognition ample opportunity to create expansive models and theories which encompass a broader swath of social phenomena with more generalizable social implications than those found in cognitive research alone (Smith & Collins, 2009; Wyer & Srull, 2014). Insofar as the study of implicit social cognition has largely become the *de facto* foundation of social psychology research in the last decade (Payne & Gawronski, 2010), it is not surprising that some of the most advanced and influential dual process theories have evolved within this particular area of inquiry.

Echoing notions of the “cognitive unconscious” as set forth by Reber (1993), the development of cognitive-experiential theory (CET; Epstein, 1991) marked a dramatic shift towards the integration of emotional processing capacities into dual-process theories (Smith & Collins, 2009). By aligning the preconscious *experiential system* with affective capacities, CET not only bridged the gap between cognitive research accounts of heuristic influences on deductive reasoning and social cognitive research on self-regulation (Epstein, 2003), but made dual-process theories accessible to applied fields such as counseling and psychotherapy (Epstein, 1994, 1987). Additionally, rather than view the *rational system* as the more advanced process of cognition, CET (1994, 2003) suggests a requisite primacy of the experiential cognitive system due to both its integration with affect and its adaptive evolutionary value. While still maintaining that the experiential and rational systems are both synchronous and complementary, CET vitalized discussions on the contribution of emotion to cognitive processing (Frankish & Evans, 2009).

In a return to the descriptions of higher thought processes by William James (1905/1977), Sloman (1996) proposed associative and rule-based true reasoning systems in an empirical reevaluation of past studies and arguments on deductive reasoning. This highly influential article was the first to describe type 1 and type 2 processes as parallel computational systems with distinct neurological structures that are guided by unique algorithms (Sloman, 2014). Whereas the associative system is reflexive, inferential, and pattern-seeking, the rule-based true reasoning system is deliberate, hierarchical, and causality-seeking, yet the two function in tandem as complementary approaches to reasoning activated under specific circumstances (Sloman, 1996). The activation of either system is regarded as context-dependent since the amount of accessible information

determines which algorithmic processes are triggered, which in turn depends upon what rules the individual has learned in relation to the given context (Sloman, 1996).

In effect, this computational approach to reasoning and judgment laid the groundwork for the integrative dual-process theories of memory which were to follow (Evans, 2009). Although Sloman (2014) made significant revisions to his computational dual-process approach so as to merge affective and somatic influences into its theoretical structure – much akin to that seen in CEST (Epstein, 2003) – the original algorithmic distinction had made its mark. Evans and Over (1996) made similar computational assertions that also contributed to this movement, although Evans (2008) still maintains that type 1 and type 2 processes are memory-oriented reasoning systems and only superficially related to affect. With the computational distinction between an implicit system of personal learning and an explicit system of effortful or conscious learning, dual-process theories were clearly moving towards rule-based conceptualizations (Frankish & Evans, 2009).

However, it was the conceptual shift from parallel to overlapping systems of dual-processing that served as the final impetus for major integrative efforts due to the inclusion of input-output processes for the resolution of type 1 and type 2 conflicts (Stanovich, 2004). Importantly, it was also within this article that the terms *System 1* and *System 2* were coined (Stanovich, 1999), which would later be brought to prominence and near universal usage among theorists and laypersons alike with the seminal article by Kahneman and Frederick (2002). Distinguishing between the disparate goals structures of System 1 and System 2, Stanovich (1999) promoted the idea that an override of System 1 by the rational means of System 2 is typically beneficial insofar as System 1 is oriented

towards reproduction goals while System 2 is oriented towards coherence goals of agency or personhood. Furthermore, experiments using an updated version of the Wason selection task identified that System 2 is not only related to general intelligence, but can be empirically measured to establish individual difference patterns in deductive reasoning abilities (Stanovich, 2004).

These results pointed towards the renewed possibility that dual-process theories might be integrated by defining System 1 and System 2 in terms of distinct memory systems (Smith & Collins, 2009). An integrative memory-based dual process model was subsequently developed by Smith and DeCoster (2000) in an attempt to reconcile the widening theoretical postulates of various dual process theories while incorporating the empirical data linking System 1 and System 2 functions to memory. Proposing that associative and rule-based processes are structurally linked to distinct memory systems, Smith and DeCoster (2000) asserted that rule-based processes actively consume attentional resources and therefore not only require intentional activation by means of a motivation impetus, but may be directly influenced by mood and implicit judgments. If there is interference with System 2 activation due to some motivational deterrent, then the slow-learning System 1 with its pattern-completion tendencies will automatically prime cognitive, affective, or behavioral responses stored from contextually similar previous experiences (Smith & DeCoster, 2000).

While the Smith and DeCoster (2000) model effectively integrated features of many dual-process theories into a single computational framework, it was soon argued that neither behavior nor emotion were adequately accounted for within the model due to the emphasis on information processing and judgment (Strack & Deutsch, 2004). Further

distinguishing impulsive from reflective processes, other researchers proposed that the two distinct memory systems compete for behavioral control, or otherwise elicit behavioral responses when the motivational impetus for their activation is particularly strong (Strack & Deutsch, 2004). In alignment with the notion of embodied cognition which asserts that cognitions are primed by repetitive behaviors (Semin & Smith, 2008), this integrative model contains both computational and affective-motivational elements. However, its computational basis remains primary, as Strack and Deutsch (2004) maintain that affect is merely a byproduct of the reflective and impulsive processes in accord with the theory of emotion (Russell, 2003), albeit capable of influencing both approach and avoidance motivations as well as habitual inferences that influence judgments.

Following the integrative model (Strack & Deutsch, 2004), the associative-propositional model was developed to further account for System 1 and System 2 evaluative conflicts, suggesting that both dual-process systems have automatic and controlled aspects (Gawronski & Bodenhausen, 2006). Using a spatiotemporal framework, it is argued that associations and propositions refer to what a process is doing while automatic and controlled refer to when a process has actually been activated (Gawronski & Bodenhausen, 2014). In making this distinction, the associative-propositional model argues both that explicit or rational processes need not be intentional even as implicit or associative processes can be accessed by conscious awareness. By removing the one-to-one conflation of associative-propositional and automatic-controlled pairings, the model effectively suggests that System 1 and System 2 processes may

indeed exist on a measurable continuum whereby each process can be activated by the other under specific operational conditions (Gawronski & Bodenhausen, 2014).

The most valuable contribution of both the impulsive-reflective model (Strack & Deutsch, 2004) and the associative-propositional model (Gawronski & Bodenhausen, 2006) to dual process theorizing is their mutual interest in clarifying the overlapping conditional elements of System 1 and System 2 processes. Most dual-process theories up until this point had maintained a certain level of disconnect between dual systems by positing a separation of the cognitive architecture of each system while providing for some degree of interaction by means of context-dependent cues. However, the introduction of affective-motivational components (Strack & Deutsch, 2004) and overlapping conditional elements (Gawronski & Bodenhausen, 2006) actually led eminent dual-process theorists to consider whether a mediating system might serve to “bridge the gap”, so to speak, between System 1 and System 2 processes (Evans, 2008; Evans & Stanovich, 2013; Stanovich et al., 2014). Dual-process theories also abandoned the terms *System 1* and *System 2* at this point for the terms *Type 1* and *Type 2*, since the latter do not insinuate a literal correspondence with discrete brain systems (Stanovich et al., 2014).

The most current dual-process theories regard the defining feature of Type 1 processing to be its autonomy, meaning all relevant Type 1 processes work independently of higher-order cognitions and are necessarily triggered by specific context-dependent cues (Evans, 2009; Stanovich, 2009). As such, the functional overlap between Type 1 and Type 2 processes is unidirectional such that Type 2 processes can directly modify or “override” Type 1 processes, but Type 1 processes do not exert any such functional

control over Type 2 processes (Stanovich et al., 2014). The stimulus override feature of System 2 processing is regarded as an executive inhibitory mechanism, interrupting or suppressing System 1 activation in a top-down manner (Evans, 2008). The substitution feature of Type 2 processing creates alternative response options when Type 1 responses have been suppressed, and involves the higher order capacity to use both *hypothetical reasoning* to consider alternative possible outcomes and *cognitive decoupling* to distinguish between hypothetical simulations and actual sensory representations (Evans, 2007, 2010; Stanovich, 2009, 2011).

By shifting the emphasis away from distinct memory processing systems and towards a more integrated view of Type 1 and Type 2 features, current theories suggest that Type 2 processing involves two complementary levels: the reflective and algorithmic minds (Stanovich et al., 2014). Akin to the suggestion set forth by the philosopher Daniel Dennett (2002), this tripartite model was a necessary consequence of introducing a higher-order control mechanism into dual-process theories since the “instructions to initiate override of Type 1 processing (and to initiate simulation activities) must be controlled by cognitive machinery at a higher level than the decoupling machinery itself” (Stanovich et al., 2014, p. 85). So while the algorithmic Type 2 processes are related to fluid intelligence and cognitive abilities, the reflective Type 2 processes that initiate Type 1 override sequences are related to epistemic dispositions of thought and cognitive styles (Stanovich et al., 2014).

This bifurcation of Type 2 processing into reflective and algorithmic systems has an important consequence inasmuch as it reintroduces the notion of cognitive styles and individual differences into dual-process theory discourse. So long as dual-processes are

regarded as distinct operating systems there is inadequate room for speculation as to how individual dispositions or cognitive styles might be understood in a dual-process framework (Epstein, 2014). However, the introduction of a tripartite structure with higher-order override capacities for algorithmic and Type 1 processes alters the theoretical landscape. It also allows for the integration of research findings across both social and cognitive psychology while opening new discussions in areas such as habit formation (Evans, 2008; Wood, Labrecque, Lin, & Runger, 2014), free will and determinism (Baumeister & Bargh, 2014), and morality (Amit, Gottlieb, & Greene, 2014).

Certain avenues of research interest such as metacognition (Greifeneder & Schwarz, 2014; Schwarz, 2015) and emotion regulation (Sheppes & Gross, 2012) have been successfully applied in dual-process frameworks as a result, based on theorizing that such constructs might be best understood in relation to experiential and rational dual processes in equal measure. Studies on Metacognition, particularly those guided by the tenets of feelings-as-information theory (Schwarz, 2012), indicate that higher order reflective processing is mediated by both declarative (i.e., algorithmic system) information as well as experiential (i.e., associative) information (Greifeneder & Schwarz, 2014). Emotion regulation studies have shown that associative forms of heuristic-based down regulation not only occur, but are often as effective as those more deliberative emotion regulation processes which serve as the traditional basis for understanding up regulated and down regulated strategies (Gallo, Keil, McCulloch, Rockstroh, & Gollwitzer, 2011; Sheppes & Gross, 2014).

Such inquiries into metacognitive and emotion regulation processes through the lens of dual process theory have been made possible by the distinction between algorithmic processes of fluid intelligence and reflective processes of cognitive styles. As a natural extension of this new perspective, the notion that the charting of unique dual-process patterns might lend insight into between-individual personality differences has also gained broader appeal. This is not to say that all dual process theorists agree that individual differences in experiential and rational processing can be assessed using a dual-process framework. On the contrary, many maintain that regardless of introducing a reflective system through the tripartite model, personality-based assessments of dispositional dual processing styles remain untenable because the experiential system and two-part analytic system, although highly interrelated, still do not operate on a measurable continuum (Evans, 2010, 2013; Stanovich, 2011, 2012).

Instead, cognitive styles apply to the reflective system alone, and therefore individual differences in cognitive style can only be determined in regards to that particular system (Stanovich, 2012; Stanovich et al., 2014). The associative foundation of Type 1 processing means that it operates autonomously to the extent that implicit rules, conditioned patterns of response, and heuristic principles do not rely on higher-order control systems to function appropriately (Evans, 2008; Stanovich, 2012). In effect, it is claimed that the autonomy and automaticity of the system prevents Type 1 processes from being considered in terms of dispositional differences because all Type 1 systems work based upon a universal set of process-based principles regardless of individual content-based distinctions. The reason for introducing cognitive styles into the modern tripartite model is therefore not to suggest that dual-process theories can provide new

insight into a dual-process perspective on individual differences, but rather to suggest that those dispositional styles of cognition which have been long examined in personality and social psychology can now be effectively located within the structure of tripartite models.

By introducing a new operating principle into the computational tripartite model, research evidence of variations in specific processing capacities that were once viewed as functioning within a single control system are now understood to be a result of operations in separate control systems. For example, scores on general intelligence tests and dispositional constructs assessed using the five-factor model of personality have always been weakly or moderately correlated (Austin & Deary, 2002; Bates & Shieles, 2003; Kanazawa, 2004). The tripartite model serves to explain this as a consequence of general intelligence operating within the algorithmic Type 2 system and dispositional personality factors operating in the reflective Type 2 system (Stanovich, 2012). Intelligence is thus viewed as a function of the algorithmic mind in particular, rather than as a central feature of the mind in general.

Another dispositional construct of personality which has shown weak correlations with general intelligence is *need for cognition*, or the dispositional tendency towards, and enjoyment of, effortful thinking (Epstein, 1996; Cacioppo & Petty, 1982). Whereas a high need for cognition indicates a tendency to “seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in the world,” a low need for cognition indicates a tendency to “rely on others (e.g., celebrities and experts), cognitive heuristics, or social comparison processes to provide this structure” (Cacioppo, Petty, Feinstein, & Jarvis, 1996, p. 198). As a thinking disposition, the tripartite model maintains that the need for cognition construct is embedded in the reflective mind as a

high-intensity processing system linked to metacognition (Greifeneder & Schwarz, 2014) and propositional evaluations (Gawronski & Bodenhausen, 2006).

The Need for Cognition Scale (Cacioppo & Petty, 1982) was thus developed to assess effortful cognitive tendencies as a stable dispositional trait rather than a situational variable. The dual-process theories that immediately followed drew some degree of inspiration and insight from this construct insofar as it reflects an implicit distinction between heuristic and rational processes (Epstein, 2014). However, its actual integration into those traditional dual-process theories was inhibited by its individual differences foundation. It was not until the development of the tripartite model and its addition of the reflective mind some twenty-five years later that the need for cognition construct was finally integrated into mainstream dual-process theories (Epstein, 2014). As has been shown, the proposed benefit of a tripartite view on dual-processing is its enhanced range of conceptual inclusiveness, particularly when compared with the natural limitations imposed by a bifurcated dual process model.

However, a relative outlier in the dual-process community of social psychology theorists used the need for cognition construct much earlier as the foundation for an individual differences measure of dual-processing tendencies. With the development of cognitive-experiential self theory, Epstein (1990) sought to create a modified version of the Need for Cognition Scale to gauge dispositional tendencies in rationality while simultaneously developing the Faith in Intuition Scale (FI) as a conceptual counterpoint assessment to measure dispositional experiential tendencies. The conceptual positioning of cognitive-experiential self theory, now called cognitive-experiential theory (CET; Epstein, 2014), was such that it conflicted with most of the early dual-process theories

due to its emphasis on the continuity of rational-analytic (i.e., Type 2) and experiential-intuitive (i.e., Type 1) processing capacities. Rather than regard the two as distinct systems as other theorists were wont to do, CET held that the rational and intuitive systems were not only highly integrated, but were nuanced enough to warrant an examination of each system in terms of individual differences (Epstein, 2014).

The design of the Rational-Experiential Inventory (REI; (Epstein et al., 1996) clearly reflects this perspective, as the development of an experiential scale presupposes that Type 1 associative processes reflect unique dispositional traits rather than function as a form of universal processing capacities. According to CET, this perspective becomes accessible by regarding both experiential-intuitive and rational-analytic processes as cognitive systems, but then further allowing that experiential processing is intimately related to affect as an emotionally driven cognitive system (Epstein, 2003). The overlap prescribed to the systems in CET is such that rational and experiential processes serve to jointly influence all behaviors, even as their interaction provides the grounds for the likes of metaphors, creativity, and wisdom (Epstein, 1994, 2014; Epstein et al., 1996).

Whereas most dual-process theories have sought to limit the number of descriptive factors used to distinguish Type 1 and Type 2 processes, CET has used its experiential and affective foundation to expand the list considerably. Akin to other dual process theories, CET maintains that the experiential-intuitive Type 1 system is indeed “fast, effortless, automatic, nonconscious, inflexible, heavily contextualized, and undemanding of working memory”, while the rational-analytic type 2 system is “slow, effortful, controlled, conscious, flexible, decontextualized, and demanding of working memory” (Frankish & Evans, 2009, p. 1). However, CET goes further by including

hedonic principles, an outcome-oriented focus, and image-based encoding in the experiential system, while including logic-reality principles, a process-oriented focus, and symbolic-linguistic encoding in the rational system (Epstein, 2003).

Based on aspects of this list, it is perhaps unsurprising that elements of psychodynamic theory are a mainstay of CET from its origins (Epstein, 1984) through to its most current iteration (Epstein, 2014). Regardless of its conceptual underpinnings, however, CET remains a dual-process theory quite distinct from traditional psychodynamic approaches due to the integrative nature of its dual systems. The overlap of the hedonic-principled experiential system and reality-principled rational system is mediated by the balancing of four basic needs as advanced by other major theorists: to maximize pleasure and minimize pain (Freud, 1900/1953), to experience relatedness (Bowlby, 1988), to maintain a coherent and stable conceptual system of self (Rogers, 1951), and to enhance self-esteem (Allport, 1961). Each of these basic needs are met by means of a coordinated effort between experiential and rational systems, even as a lack of coordination leads to negative psychological consequences due to personality disruption (Epstein, 2003).

From this idea that multiple psychological needs are fulfilled by the balancing of dual-process systems arises the obvious question as to how each system uniquely influences needs fulfillment. According to CET, the experiential-intuitive and rational-analytic processes are distinct yet overlapping information processing modalities, which indicates that each lends a particular set of computational systems to the task of needs fulfillment (Epstein, 2014). It further indicates that adaptive as well as maladaptive needs fulfillment strategies can arise from the use of either system. There is no sense in which

one system is “superior” to the other, as each operates to fulfill the basic psychological needs but serve this purpose by means of a complex yet integrated functional apparatus. Albeit by quite different means, both have evolved to enhance organismic survival as well as stability, and have an equal capacity to formulate adaptive responses under a variety of environmental conditions (Epstein, 2003; Evans, 2009).

It is at precisely this point that the orientation model (Wilkinson, 2015) intercedes to suggest that understanding how dispositional tendencies to utilize one system or the other, particularly under conditions of stress, might lend insight into both the adaptive and maladaptive habitual patterns employed by clients to resolve psychological conflicts and to enhance needs fulfillment. While CET has extended a similar proposition in terms of psychotherapeutic approaches, its emphasis has been specifically directed towards clinical methods for instantiating therapeutic changes to the experiential system (Epstein, 2014). It is surmised that such changes can occur either by “the use of the rational system to correct and train the experiential system,” or by “the provision of emotionally significant corrective experiences, communicating with the experiential system in its own medium” (Epstein, 2003, p. 176).

As a psychodynamic theory of personality, CET asserts that its tenets can provide a specific and comprehensive approach to counseling and psychotherapy. It thus serves as both a theoretical framework of personality and a practical methodology for clinical practices. The orientation model makes no such claims about global personality, as its primary function is to combine the dual-process framework with established scientific knowledge on dispositional characteristics to elucidate how the use of habitual strategies can either impede or facilitate needs fulfillment and adaptive functioning (Wilkinson,

2015). Its emphasis is thus on the practical consequences of adaptive and maladaptive dual-processing rather than a comprehensive explanation of personality formation (Epstein, 2014).

Furthermore, it approaches the issue of clinical methodology from an alternative and as yet unexamined angle, namely within a humanistic-existential counseling approach. In this respect, the orientation model was designed to inform counselors on general patterns of client processing rather than be applied as part of a comprehensive diagnostic taxonomy for psychopathologies and symptom evaluation (Epstein, 2003, 2014). The orientation model works within the confines of a more restrictive set of guiding principles than CET, and is meant to be applied in a far more particular way.

Theoretical Stance of the Orientation Model

The orientation model is a humanistic-existential assessment tool for clinical use that gives humanistic counselors a means by which to determine the influence of client dispositional traits on adaptive functioning without resorting to diagnostic labels or other reductionist practices. The most basic, shared tenet of dual process theories is the notion of dual processing itself. Whether discussed in terms of divergent systems with separate processing capacities, parallel systems with overlapping functions, or tripartite systems with hierarchical processing conditions, all dual-process theories presuppose that these systems impart particular environmental advantages by means of uniquely adaptive processing strategies. From this fundamental position, the orientation model asserts that understanding how individuals uniquely differ in the expression and use of dual processing capacities can benefit personal development, insight, and self-awareness. By

extension, equipping counselors with an assessment tool for recognizing such within-individual differences can confer the same basic advantages in the clinical realm.

So dual process theories consistently maintain that two processing capacities are at work in all human activities. A diverse array of terms have been applied to each processing system (for a review, see Stanovich, West, and Toplak, 2014). The first set of processes include terms such as System 1, Type 1, heuristic, automatic, implicit, reflexive, associative, stimulus-bound, intuitive, and experiential. The second set of processes have been referenced as System 2, Type 2, systematic, explicit, rule-based, conscious, rational, analytic, higher-order, and propositional. For the purposes of the orientation model, two particular terms are applied in all references to dual-processing systems: experiential and analytic. These have been chosen primarily as a means of ensuring internal consistency, but also due to the relative ease with which such terms might be assimilated into professional counseling practices and discourse.

Dispositional Analytic Processes

The analytic system uses inferential and deductive cognitive processes to solve problems aid in decision-making, and optimize outcomes. Logic and language form the basis of its processing capacity, and in this respect it operates sequentially and encodes information in terms of abstract symbols like words and numbers. Accurate evaluation is therefore a primary function of the analytic system, whereby it assesses causal relationships between stimuli and outcomes in order to enhance the predictive capabilities of the individual. In this respect, the ability to predict future outcomes also serves as a control mechanism, providing a means by which an individual can consciously learn

ways to increase or decrease the probability of a given outcome by enacting certain behaviors and manipulating environmental conditions.

Such predictive, cause-and-effect abilities are generally slow by processing standards, requiring considerable cognitive effort and consuming substantial cognitive resources. Guided by the reality principle, the analytic system is motivated by the accuracy of inferential logic and therefore emphasizes objective reasoning over subjective notions such as desires or feelings. In this respect, it is a highly differentiated, integrated, and organized system that operates from the level of adaptive principles, making it highly prone to conscious change based solely on insight and evidence. The analytic system is also oriented towards the delay of action, such that the hope or promise of future rewards can be prioritized over immediate gratification. Generally affect-free, it works from cost-benefit analyses in this respect since it remains uninfluenced by the emotional cues that drive behavioral impulsivity.

Dispositional Experiential Processes

Just like the analytic system, the experiential system functions to solve problems, aid in decision making, and optimize outcomes. However, it does so through the use of associative, heuristic, and affect-imbued cognitive processes that have been learned automatically through experience rather than deduced through a logical apparatus. Its processing capacity is primarily imagery-based, encoding information non-verbally rather than through abstract symbols. Pattern recognition is a primary function of the experiential system, which operates unconsciously and yet “nevertheless guides thought and inquiry towards a hunch or hypothesis about the nature of the coherence in question” (p. 23). Unconscious pattern recognition provides a means by which to assess threats and

opportunities in the environment, making emotional cues and intuitive prompts important survival tools that are laden with rapidly-processed information.

Such associative thinking is rapid by processing standards, consumes few cognitive resources, and requires little cognitive effort as a result. The hedonic principle guides the experiential system, as the pursuit of pleasure and avoidance of pain serve an adaptive evolutionary function. However, it is a crudely integrated system that operates in a context-specific, categorical, and disorganized manner, making it highly susceptible to biases and misinterpretations. It is also highly resistant to change, as the encoding process for the experiential system requires either rote repetitiveness to shift habitual responses or the onset of affectively-intense experiences to reorganize its operating conditions. As an associative and affect-driven system, its rapid processing capacity orients it towards impulsive, habitual, or otherwise immediate actions that may or may not be adaptive under a given set of circumstances. However, the automatic associations that are derived from observation are often highly accurate representations of the environment, making the experiential system a powerful tool for assessment and action.

Conceptual Implications for Counseling

The primary benefit of the orientation model is its unique assessment of client dual-processing dispositions related to the cognitive, attachment, empathic, and introspective constructs. Rather than being a substitute for other assessments or clinical judgment, it acts as an informational supplement which can enhance both in the treatment process. Integrative, assimilative, trans-theoretical and multi-theoretical models of psychotherapy provide specific formulas for thinking about presenting problems and goal development (Norcross & Goldfried, 2005). However, the orientation model and measure

provide informative data sets about dispositional client tendencies which can be applied *within* such formulas for thinking about presenting problems and goal development.

Bringing together a series of dispositional measures from different psychological theories into a cohesive framework for the purpose of case conceptualization can provide counselors with extremely relevant client information prior to treatment. The orientation model and its corresponding assessment aim to merge these notable and distinctive theories into a system specifically designed for counselors to use in gauging important individual differences in client behavioral patterns. By incorporating theoretically-derived measures into a dual processing framework, counselors can determine important client variables within an easily conceptualized thinking/feeling spectrum. Assessment results can be readily applied in counseling, lending counselors information on client attributes that support the interpretation of behaviors, symptoms, and presenting problems.

A significant portion of the case conceptualization process involves making calculated interpretations of client behaviors and motivations based on widely varying degrees of client-provided information (Falvey, 2001). Whether incorporating results from assessment tools or comparing and contrasting verbal reports and observations of client non-verbal behaviors, counselors must attempt to conceptualize the client's experience by combining clinical experience, theoretical viewpoints, cognitive heuristics, and intuitive leanings to arrive at an accurate clinical judgment (Falvey, 2001; Kleinmuntz, 1990). Although aspects of both the art and the science of counseling merge in this process of interpretation, there is much to be said for trading anecdotal evidence for empirical data when possible. Similar to how clinical symptoms are monitored through highly specified measures, the orientation model provides counselors with trans-

diagnostic information on client dispositional characteristics that can be readily applied in the process of case conceptualization.

Existential Framework of the Orientation Model

Whereas dual-processing provides the theoretical foundation for the orientation model and its constructs, an existential framework serves as the conceptual basis for adopting each particular construct within the model. In accordance with the notion of *Lebenswelt*, or phenomenological lifeworld (Husserl, 1936/1970), the orientation model frames individual processing styles in terms of three dimensions of human experience. These include the *Umwelt* or physical world, the *Mitwelt* or social world, and the *Eigenwelt* or personal world (Binswanger, 1946/1958). As applied in existential psychology, therapists are encouraged to actively seek understanding around each of the three dimensions so as to gain insight into the phenomenological lifeworld of clients (May, 1967). It has also been asserted that each dimension provides unique information on client styles of interpretation and interaction rooted in dual-processing (Wilkinson, 2015).

Rather than perceive these dimensions as disparate or otherwise disconnected aspects of persons, each is inextricably linked by means of *intentionality* (May, 1969). Through an existential-phenomenological lens, intentionality “refers to a state of being, and involves, to a greater or lesser degree, the totality of the person’s orientation to the world at that time” (May, 1969, p. 234). In this respect, the phrase “human experience” is understood to involve structures of consciousness such that the entirety of experiential phenomena – thoughts, feelings, behaviors, motivations, understandings, imaginings, and the like – are included (Husserl, 1936/1970). So from the standpoint of a

phenomenological investigation of intentionality, *Umwelt* is the conscious inner-world, *Eigenwelt* is the unconscious inner-world, and *Mitwelt* is the with-world of social relationships with others (Diamond, 2014; May, 1969).

In line with the humanistic penchant for considering the whole person, then, explorations of the *Lebenswelt* from an existential perspective must involve all dimensions of the phenomenological lifeworld. Furthermore, each dimension must be viewed with an understanding that intentionality is an encompassing subjective experience of both the conscious and unconscious inner world as well as the point of interface and interpretation of others in the social world (Diamond, 2014). In other words, the phenomenological lifeworld is a consequence of that fundamental property of consciousness known as *intentionality*, which is in turn understood in the frame of existential inquiry to be composed of multiple experiential dimensions. Rather than view the dimensions of *Lebenswelt* as three disconnected aspects of human consciousness, it is perhaps more appropriate to suggest that each represents a particular mode of conscious engagement with the world.

By regarding the phenomenological lifeworld dimensions as modes of conscious engagement rather than distinct aspects of consciousness, a question arises as to how subjective experience is mediated between, or transitions among, each of the modes. Intentionality is taken to be an indivisible structure of conscious experience in the existential and phenomenological traditions (Diamond, 2014; Husserl, 1936/1970; May, 1969), which contributes to the humanistic ideal of the whole person as a seeking towards stability and coherence in self-structures (Rogers, 1951). This would seem to suggest a sense in which lifeworld dimensions are fluid, since maintaining the coherence of

conceptual systems requires an ability to integrate highly disparate information processing inputs into a meaningful gestalt. Without such an integrative capacity our experiences would essentially be fractured or disorganized rather than stable or coherent, resulting in threats to the phenomenal self (Snygg & Combs, 1949).

The orientation model proposes that the lifeworld dimensions can be understood in relation to one another by considering how those psychological capacities serve as mediators of the conscious engagement modes. In other words, the tendency towards systemic coherence of the phenomenological lifeworld gives rise to certain facilitative processing capacities, each of which are regarded as a natural consequence of interaction among the dimensions. As seen in the diagram for the orientation model (Figure 1), each of the *Lebenswelt* dimensions serves as a sort of “cornerstone” of subjective human experience. The orientation model constructs, however, represent distinct methods of interpreting subjective experiences both within and between those phenomenological lifeworld dimensions. Insofar as these dimensions are particular modes of conscious engagement which combine to represent a personal worldview, the orientation model constructs are particular methods by which we attempt to process the relationship between those worldviews so as to maintain the stability of our self-structure (Wilkinson, 2015).

Therefore, the orientation model posits four styles of interpretation derived from the combined elements of lifeworld dimensions (Wilkinson, 2015). The *cognitive orientation* is an interpretation of personal experience in contact with the physical world, or the mediating consequence of the inner unconscious world (i.e., *Eigenwelt*) combining with the inner conscious world (i.e., *Umwelt*). The *attachment orientation* is an

interpretation of personal experience in contact with other subjects, or the mediating consequence of the inner unconscious world (i.e., *Eigenwelt*) combining with the social with-world of others (i.e., *Mitwelt*). The *empathic orientation* is an interpretation of how other subjects experience the physical world, or the mediating consequence of the inner conscious world (i.e., *Umwelt*) combining with the social with-world of others (i.e., *Mitwelt*). One conceptual outlier, the *introspective orientation*, is regarded as a direct indication of how memory and imagination are habitually utilized to process personal experiences within the *Eigenwelt*, or inner unconscious world of introspective processing (Wilkinson, 2015).

Gathering information on client worldviews may therefore grant counselors the opportunity to discern unique styles of interpretation that directly influence the phenomenal lifeworld experience of those clients. While the relationship between presenting problems and worldviews is not such that direct predictions can be made, information about particular worldviews can certainly provide a lens through which to interpret presenting problems and clinically relevant symptoms. The orientation model is guided by this basic supposition and asserts that a basic understanding of dispositional dual-processing styles actually contextualizes, or provides a general rationale for, many of the thoughts, feelings, and behaviors that clients present with in counseling. As such, the active identification of habitual client tendencies can support strengths-based therapeutic approaches which capitalize on adaptive client strategies and modify those areas in need of growth.

A caveat is important to note at this juncture, as the orientation model diagram is not meant to be a representation of the notion of self or other such related constructs. The

dynamic nature of human experience involves a complex and diverse range of factors that can neither be reduced to nor adequately encompassed within an applied psychological model, and thus the orientation model itself is not designed to signify a complete notion of either self or personality. Rather, the orientation model diagram serves as a visual representation of how dispositional tendencies may relate to the proposed dimensions of human experience set forth by existential notions of the *Lebenswelt*, or phenomenological lifeworld of individuals.

Constructs of the Orientation Model

Each measure of the orientation model was chosen based on distinct conceptual parallels to the cognitive and experiential positions found in dual process theories. Although an existential framework provides the grounds for including each broad construct in the model, it remains necessary to clearly define each construct in theoretical terms. The orientation model asserts that a dual process approach to the four existential orientations can be interpreted through four corresponding theoretical lenses. These include the cognitive orientation of cognitive-experiential theory (Epstein, 2014), the attachment orientation of differentiation of self theory (Bowen, 1978), the empathic orientation of the social-cognitive simulation theory of empathy (Rameson & Lieberman, 2009), and the introspective orientation of objective self-awareness theory (Duval & Wicklund, 1972).

The cognitive orientation, founded upon Cognitive-Experiential Theory (CET; Epstein, 2014), distinguishes between analytic and experiential modes of information processing, with clinical implications in terms of how individuals generally conceptualize and communicate their worldviews. Dual process theories generally maintain that

experiential processing represents a default capacity for handling daily functions whereas analytic processing is primed by new or unexpected situations or environmental conditions. As an account of individual differences, CET maintains that experiential and analytic processing capacities differ widely between-individuals, and represent distinct within-individual processing styles (Epstein, 2014). Furthermore, CET suggests that anxiety-provoking or otherwise stressful situations tend to exacerbate habitual processing tendencies, leading individuals to the preferential use of either experiential or analytic capacities under stressful conditions.

The attachment orientation, derived from Differentiation of Self Theory (DST; Bowen, 1978), distinguishes between emotional cutoff and emotional reactivity with clinical implications in terms of interpersonal interactions, relationship difficulties, and views on relational intimacy and autonomy. Emphasizing the psychological importance of individuation, differentiation of self suggests that cognitive and emotional functioning is optimized by an ability to maintain healthy interpersonal boundaries (Bowen, 1976). As a relational construct, differentiation also suggests an ability to clearly distinguish between a sense of oneself and the experiences of others, such that the individual takes responsibility for their own thoughts, feelings, and behaviors without experiencing undue accountability for the thoughts, feelings, and behaviors of others (Bowen, 1978). Furthermore, DST asserts that any personal vulnerability to emotional reactivity or emotional cutoff is naturally exacerbated by stressful interpersonal conditions (Bowen, 1976).

The empathic orientation is based upon the social-cognitive simulation theory of empathy (Rameson & Lieberman, 2009) which distinguishes between propositional and

experiential forms of empathy. In this respect, it signifies an interpersonal ability to conceptualize the perspective of others (i.e., cognitive empathy) and to emotionally attune to the affective experience of others (i.e., emotional empathy), respectively. According to simulation theories of mind, accurate empathy stems from an ability to attribute mental states to others and infer potential intentions through a dynamic process of mental simulation or modeling (Baron-Cohen, 1995). Social-cognitive simulation theory suggests that such mental modeling can occur in either an experiential “as-if” mode consisting of affective and cognitive conditions, or a propositional mode composed of controlled meta-cognitions without affect (Rameson & Lieberman, 2009).

The introspective orientation takes its mark from objective self-awareness theory (OSA; Wicklund & Duval, 1972), which asserts that self-focused attention is a primary feature of human consciousness and a requisite condition of self-awareness. Variations in self-attentiveness as a state-based or situational tendency are regarded as an important aspect of self-consciousness, whereby an individual takes oneself as an object of awareness rather than a subject of first-person, immersive experience (Silvia & Duval, 2001). Additionally, OSA provides a conceptual framework for exploring trait-based or dispositional tendencies in the use of self-focused attention. Reflection and rumination are introspective methods of assessing and resolving self-standard discrepancies, and individual differences in the use of these constructs lend insight into how introspective strategies influence adjustment and coping (Trapnell & Campbell, 1999). As such, each signifies a particular tendency to attend to introspected events based on intellectual curiosity about the self and sensing threats directed toward the self, respectively.

In the following section, each of the orientation modes are discussed in terms of the theoretical tenets on which they are founded as well as the corresponding constructs that bridge the gap between each theory and the dual-process framework. Each of these particular sets of constructs were chosen to represent the overarching theories because they appear to operate according to dual-process principles of analytic and experiential processing and they each have well-established, empirically-validated measures that have been developed using confirmatory factor analysis. For the empathic and introspective orientations, additional 2x2 models taken from the literature have been included to draw attention to the potentially robust descriptive power of each set of constructs. Finally, implications for counseling are briefly discussed.

Cognitive Orientation: Analytic & Experiential Processes

It is important to recognize that a key difference between CET and other current dual-process theories is that CET claims that the experiential and analytic systems are both *types* and *styles* of cognitive processing (Epstein, 1994). In other words, each system functions as part of the immutable cognitive architecture, but can also be measured in terms of individual differences on a continuum of dispositional cognition styles (Epstein, 1999, 2003). This position stands in stark contrast to many dual-process theories which assert that the cognitive architecture does not reflect stable personality traits (Evans, 2009). As a consequence, dual-process theorists that emphasize system types are generally unwilling to suggest that dispositional styles of processing can be derived by means of assessments or measures (Evans, 2009). In contrast, CET asserts that the value of dual-process theory lies in its ability to explain individual differences.

Therefore, CET distinguishes between the analytic and experiential aspects of human dual-processing using an individual-differences measure to assess how often these interdependent but qualitatively distinct cognitive capacities are typically used. Mounting evidence suggests that while both systems regularly contribute to daily functioning, individuals tend to preferentially rely on one over the other, particularly when under stress (Epstein, 2014; Pacini & Epstein, 1996). CET provides a theoretical framework for understanding why we encounter such remarkable individual variations in analytic and experiential processing, and has provided a wealth of insight into otherwise discrepant empirical outcomes related to coping, adjustment, intimacy, individuation, optimism, stereotypical thinking, and problem solving (Epstein, 2014).

While the experiential system operates in tandem with affective processing, it is not reducible to affect because it is a cognitive system. Affect influences cognitive processes through what CET refers to as *vibes*, or a subset of vague feelings that are difficult to articulate yet are not beyond immediate awareness. Positive vibes can include feelings of gratification, calmness, anticipation, and well-being, while negative vibes can include feelings of edginess, tension, apprehension, agitation, or disquietude (Epstein, 2003). This is quite similar to phenomenological notions of embodiment (Merleau-Ponty, 1962), and inheres within the “felt sense” of experiential psychotherapy (Gendlin, 1974) and the “bodily” (Yontef, 1979) or “gut” (Kepner, 2003) feelings of gestalt approaches. Such vibes are an expression of preconscious awareness, or the recognition of patterns in our immediate experience that evoke subtle memories of similar past experiences (Epstein, 2003).

The analytic translation of such experiential vibes results in explanations and, at times, rationalizations that can interfere with the interpretation of these often informative subsets of feelings (Epstein, 2014). This is not meant to downplay the value of analytic processing in counseling, as reasoning and evidence maintain a crucial role in the development of self-awareness and insight. Instead, it is meant to highlight the value of experiential processing from a humanistic-existential perspective. CET asserts that by understanding both how the experiential system operates and how to interpret its cues, more effective cognitive processing can take place that improves mental health outcomes. Insofar as creativity, empathy, and wisdom may arise from the interplay of analytic and experiential processing (Epstein, 2003), counselors can apply their knowledge of how clients preferentially use each system to develop treatment approaches that improve the balanced use of the interconnected and equally important styles of cognition.

Attachment Orientation: Processes of Emotional Cutoff & Emotional Reactivity

Bowen (1978) established *differentiation of self* theory (DST) to highlight the influence of interpersonal relationships on intrapersonal functioning, suggesting that individuation contributes to healthy cognitive and emotional outcomes. Higher levels of differentiation are regarded as adaptive, and thus individuation reflects an enhanced capacity for personal autonomy, self-confidence, and authenticity (Bowen, 1978). Lower levels of differentiation are a consequence of pressure towards in-group conformity, resulting in a desire for acceptance and approval-seeking that can stymie personal development (Bowen, 1978). While emotional interdependence is viewed as an important aspect of human functioning, DST suggests that the highly differentiated individual

places a realistic sense of value on interpersonal relationships without allowing the emotionality of conflict or suggestion to interfere with personal decision-making (Bowe, 1978). Effectively navigating relationships requires an ability to rationally distinguish oneself from others, even as it requires that one recognize when reliance on others is adaptive.

According to Skowron and Dendy (2004), DST also suggests that one's level of adaptive intellectual and emotional individuation has far-reaching implications in terms of dispositional attachment styles. In alignment with attachment theory research, the concept of differentiation is largely descriptive rather than explanatory and emphasizes the impact of family dynamics on habitual interpersonal response patterns, emotional stability, and autonomous functioning (Skowron & Dendy, 2004). Just as maladaptive patterns of attachment are considered in terms of excessive approach and avoidance tendencies, the maladaptive consequences of differentiation are separated into the approach style of emotional reactivity and the avoidance style of emotional cutoff (Skowron & Dendy, 2004). As such, emotional reactivity stems from anxious or preoccupied attachment styles, while emotional cutoff is related to avoidant and dismissing attachment styles (Skowron & Dendy, 2004).

As dispositional responses to interpersonal conflict, both emotional reactivity and emotional cutoff are viewed as harmful to the development of intimacy and autonomy (Skowron & Schmitt, 2003). Emotional reactivity is related to the chronic anxiety and worry associated with a preoccupied attachment style, and reflects the habitual tendency towards active and aggressive responses to relational conflict (Skowron & Dendy, 2004). Emotional cutoff was modified from the cross-generational concept of differentiation to

reflect habitual tendencies towards avoidant, passive, and passive-aggressive behaviors which hinder both intimacy and autonomy formation (Skowron & Dendy, 2004). Both emotional reactivity and emotional cutoff are methods of self-regulation implemented when an insecurely attached individual faces relational conflict.

Perfect self-differentiation is rightly considered an unattainable ideal, as the degree to which an individual distinguishes between thinking and feeling processes varies based on a multitude of factors (Skowron & Schmitt, 2003). However, enhancing self-differentiation nestles comfortably within the ideological parameters of counseling. Underlying issues of intimacy and autonomy are often key components in conceptualizing cases and developing therapeutic goals, even though they are usually not brought forth directly as a presenting concern by clients. The concepts are highly inclusive, representing a broad array of situational factors while simultaneously distilling the foundational patterns to which many interpersonal problems may be attributed. Incorporating a dual process approach to attachment through the concept of self-differentiation can provide counselors with extremely relevant information about how habitual client dispositional tendencies negatively impact their pursuit of intimacy and autonomy.

Empathic Orientation: Cognitive & Emotional Processes

The question of how best to define the concept of empathy has resulted in considerable debate over the last forty years, with theorists historically emphasizing cognitive aspects (e.g., Hogan, 1969), affective aspects (e.g., Stotland, 1969), or some combination therein (e.g., Davis, 1980; Smith, 2006) when building empathy models. While it is widely agreed that empathy involves some process of understanding and being

sensitive to the mental and emotional state of others, there is widespread disagreement as to how this system operates (Smith, 2006). Cognitive empathy is regarded by many as synonymous with perspective taking (Davis, 1996), although there is little agreement on the process by which such a cognitive phenomenon occurs. Affective empathy is generally considered a vital aspect of both infant and adult attachment (Vreek & van der Mark, 2003), while both behavioral and neurological observations point to an affective empathic response in animals ranging from dolphins to rats (Preston & de Waal, 2002).

The integrative dual process model of empathy suggests that seven distinct models have been developed in the literature to explain how cognitive and affective empathy interact to balance selfish and altruistic behaviors (Smith, 2006). The integrative model simply outlines how each can be understood from a dual processing approach to empathy. According to this integrative model, separate but complementary cognitive and affective empathy systems should provide an evolutionarily adaptive advantage in the complex world of human interactions (Smith, 2006). It also provides a spectrum-style framework for conceptualizing individual differences based on the degree of integration between cognitive and emotional empathy systems. The 2x2 model includes *cognitive empathy deficit* (low cognitive empathy, high emotional empathy), *emotional empathy deficit* (low emotional empathy, high cognitive empathy), *general empathy deficit* (low cognitive empathy, low emotional empathy), and *general empathy surfeit* (high cognitive empathy, high emotional empathy).

Other researchers are actively addressing this line of thought, developing new models which integrate cognitive and affective neuroscientific views of empathy (Boston, 2007). In particular, the social-cognitive simulation theory of empathy distinguishes

between experiential and propositional modes of empathy that parallel dual-processing frameworks and build upon recent advances in neuropsychology (Rameson & Lieberman, 2009). The experiential mode includes affective as well as cognitive components and “can be thought of as an automatic, affective, stream-of-consciousness experience that feels like unmediated reality” (p. 101), while the propositional mode is strictly cognitive insofar as it involves metacognitive evaluations and controlled reasoning (Rameson & Lieberman, 2009). In line with simulation theories of empathy, both experiential and propositional modes denote a process of “putting yourself in another’s shoes” (Baron-Cohen, 1995), or “seeing with the eyes of another, listening with the ears of another, and feeling with the heart of another” (Adler, 1928). It suggests that empathic simulations are a necessary precondition for effective interpersonal socialization, behavioral prediction, and motivational explanation (Gordon, 1995).

The differential outcomes of experiential and propositional empathy result from the specific functional capacities of their respective dual-processing systems. Arising from the experiential system, emotional empathy involves attuned responsiveness in a feeling of connectedness with others (Smith, 2006), or the activation of embodied emotional states that somatically represent the perceived experience of another (Preston & de Waal, 2002). Within the analytic system, cognitive empathy involves the insight-oriented capacity of perspective-taking (Mooradian, Davis, & Matzler, 2011), or the activation of mental representations that signify a metacognitive attunement to the mental-perceptual or subjective motivational experience of others (Preston & de Waal, 2002). Neuroimaging studies have implicated mirror neurons in both empathic processes, as primarily activated in the ventromedial prefrontal cortex (Rameson & Lieberman,

2009). A functional divide in this area of the brain indicates that the ventromedial prefrontal cortex may play an important role in emotional empathy and the dorsal region may relate to cognitive empathy (Stuss & Levine, 2002).

Avoiding any etiological or interpretive projections, the usefulness of such a framework for counseling is evident. The functional utility of empathy in interpersonal relationships has been well-established, not only as an important part of the therapeutic alliance (Wampold, 2001) but as a positively contributing factor in the general human ability to cultivate and maintain healthy relationships (Long & Andrews, 1990). A counselor equipped with knowledge of such dispositional tendencies can more effectively conceptualize, address and develop treatment plans based on a client's patterns of empathic responsiveness both within the therapeutic relationship and outside of it. Additionally, a 2x2 model of social-cognitive empathy has been proposed that could have implications for counseling practice and research.

Introspective Orientation: Reflective & Ruminative Processes

Objective Self-Awareness Theory (OSA; Duval & Wicklund, 1972) originated as a framework to describe state-based situational variances in self-focused attention as a component of self-reflexive consciousness (Silvia & Duval, 2001; Silvia, Eichstadt & Phillips, 2005). The theory holds that attention directed toward the self results in both conscious awareness of the self and an evaluative process of comparing the self against standards (Duval & Wicklund, 1972; Silvia & Phillips, 2013). This objective form of self-awareness is to be contrasted with a subjective form, described in terms of the organism's direct and undifferentiated engagement in behavior and perception (Silvia & Duval, 2001). It should be noted that this distinction between objective and subjective forms of

self-awareness does not represent a form of attentional duality since OSA assumes that attention can either be directed internally (i.e. objective self-awareness) or externally (i.e. subjective self-awareness) at any given time. OSA maintains that attention is a singular phenomenon without any identifiable qualities, characteristics, or types.

In response to OSA, Fenigstein, Scheier and Buss (1975) designed the self-consciousness scale to measure trait-based dispositional variances in self-focused attention. Three distinct categories emerged in the process, two of which have become the foundation for a large body of empirical and theoretical research since that time: public and private self-consciousness. Akin to OSA, self-consciousness theory (SCT) proposed that self-focused attention can be either internally or externally directed (Creed & Funder, 1999; Fenigstein, 1987). Yet the content of this internal-external distinction is fundamentally different from OSA, as public self-consciousness represents self-focused attention in the form of an *external self* perceived by others (e.g. the way one walks, the clothes one wears, etc.) whereas private self-consciousness represents self-focused attention in the form of an *internal self* others cannot perceive (e.g. personal thoughts, beliefs, feelings, etc.). A guiding assumption of SCT is that these are distinct types of self-directed attention.

Proponents of OSA later contended that distinguishing types or qualities of self-focused attention is conceptually incoherent because attention is “a contentless concept, without characterizable qualities” (Wicklund & Gollwitzer, 1987, p. 499). It has also been claimed that the self-consciousness scale utilizes an atheoretical, factor analytic-based approach that disregards the dynamic cognitive and motivational processes guiding self-awareness by passing descriptive categorical membership off as an explanation for self-

consciousness (Wicklund & Gollwitzer, 1987). It has been well argued that the advantages of such categorical reductionism for empirical research - particularly those derived from factor analytic methodologies - are quickly offset when construct validity issues later arise that call entire lines of research into question (J. Block, 1995; Boyle, 2008). The public and private subscales derived from SCT have been widely used in research despite pressing concerns over construct validity issues stemming from motivational confounds in both.

In a meta-analysis relating self-focused attention to negative affect, Mor and Winquist (2002) cite Ingram's (1990) definition of *self-focus* as “an awareness of self-referent, internally generated information that stands in contrast to an awareness of externally generated information derived through sensory receptors” (p. 156). This clearly aligns with OSA's conceptualization of objective and subjective self-awareness as a unitary construct, and contrasts with the public and private forms of attention set forth in SCT. As such, researchers called for new public and private measures to be developed due to validity and reliability problems in the self-consciousness scale (Mor & Winquist, 2002). While the public scale has fallen into particular disfavor (Chang, 1998; Silvia & Duval, 2001; Silvia, Eichstaedt, & Phillips, 2005), the private scale was subsequently modified or otherwise adapted across multiple models to account for motivation as a possible component of self-focus (Anderson, Bohon, & Berrigan, 1998; Creed & Funder, 1998; Watson, Morris, Ramsey, Hickman, & Waddell, 1998).

One such modified version claimed that *the self-absorption paradox* (i.e., heightened self-focus results in both enhanced self-knowledge and psychological maladjustment) found in empirical results of the private self-consciousness scale is

attributable to its measuring two different factors: reflection and rumination (Trapnell & Campbell, 1999). In modifying the theoretical standing of SCT, both the reflection-rumination model of private self-consciousness and the corresponding Reflection-Rumination Questionnaire (RRQ) posit an *attention x motivation* framework (Trapnell and Campbell, 1999). Therein, reflection is defined as “self-attentiveness motivated by curiosity or epistemic interest in the self” and rumination as “self-attentiveness motivated by perceived threats, losses, or injustices to self” (Trapnell & Campbell, 1999; p. 297).

The reflection-rumination model maintains that high levels of reflection or rumination are indicative of habitual self-focused attention patterns. Epistemic curiosity signifies the approach-oriented exploratory features of reflection while threat avoidance denotes the compulsive features of chronic ruminative thought (Trapnell & Campbell, 1999). The positive-negative valence respectively attributed to reflection and rumination is also consistently applied in the context of non-emotionality for the former and chronic symptomology for the latter (Deyo, Wilson, Ong, & Koopman, 2009; Takano & Tanno, 2009; Watkins, 2008). Similarly, reflection is widely touted as an adaptive capacity of cognitive foresight (Marks, Sobanski, & Hine, 2010; Williams, 2008) whereas rumination is typically related to maladaptive strategies and neurotic features (Ciesla, 2005; Ito & Agari, 2003; Lyubomirsky, Tucker, Caldwell, & Berg, 1999).

It has also been suggested that the reflection/rumination distinction might be particularly relevant in light of the coping and adjustment literature, bringing approach and avoidance styles of cognition into a 2x2 model with implications for counseling practice as well as research (Trapnell & Campbell, 1999). The four dispositional styles of introspective cognition that result from this model include *sensitizing* (high reflection,

high rumination), *repressive* (low reflection, low rumination), *vulnerable* (low reflection, high rumination), and *adaptable* (high reflection, low rumination). Counselors equipped with information on such processes gain insight into how client presenting symptoms and concerns are fueled by habitual patterns of coping and problem solving.

Summary Statement

The orientation model is designed to provide counselors with a means to assess client dispositional tendencies related to cognitive processing, attachment, empathic awareness, and introspection. Conceptualized within a dual process theory framework and incorporating empirically-validated psychological measures, it is proposed that the model can be used to determine individual client variations along a rational-intuitive processing spectrum. As a supplement to clinical judgment and traditional assessments, the orientation model is meant to enhance case conceptualization practices by providing information that contextualizes the presenting concerns of clients and the observations of counselors. It supports therapeutic interventions by assessing for important dispositional variables that directly contribute to both interpersonal and intrapersonal instability.

Additionally, the orientation model aligns with the guiding philosophies of humanistic and existential counseling. Operating in tandem with the existential notion of the Lebenswelt, it frames dispositional dual-processing patterns as the situated lens through which clients interpret their personal experiences (Wilkinson, 2015). Client worldviews are understood to mediate how personal experiences are interpreted, which in turn influences those client thoughts, feelings, and behaviors manifest as presenting concerns and symptoms in counseling. Each of the orientation model constructs address a particular aspect of the client worldview that may serve to either protect individuals from,

or expose them to, adverse states of being in the world. Integrating the orientation model with a humanistic or existential approach can thus provide those counselors with insight into how certain habitual dual-processing patterns and cognitive predispositions tend to influence client interpretations of experience.

Counselors are trained to develop case conceptualizations and treatment plans using a combination of client self-reports, observational evidence, and clinical judgment. This process requires that counselors formulate calculated interpretations that blend both inductive and deductive elements (Falvey, 2001). As an assessment tool for case conceptualization purposes, the orientation model is intended to supplement this process of clinical interpretation by contributing empirical data from established psychological measures that can inform the therapeutic decision-making process. While each of the individual measures used have been empirically-validated, their supplemental roles within the conceptual framework of the orientation model have not been validated. This study was therefore designed to validate the hypothesized relationship among the four constructs and associated measures as implemented within the orientation model.

CHAPTER III

METHODS

The research methodology for this study is outlined and discussed in this chapter. It describes the research questions, hypotheses, participants, measures, procedures, and data analyses that were used in the study. This study investigated whether four distinct psychological constructs could be conceptually unified to develop a counseling assessment for case conceptualization and treatment planning purposes. Testing four instruments that assess distinct psychological constructs, it was hypothesized that both the direction and the magnitude of relationships among the instrument variables would be explained using a dual-process theory framework. A non-experimental survey design using convenience sampling and four self-report measures was employed to examine the research questions and test the stated hypotheses.

Participants

Participants were undergraduate students enrolled in various sections of a first-year seminar course at a medium-sized, Midwestern four-year research university. Based on aggregate course statistics, all students enrolled in the first-year seminar course were first-year, first-time college students ($N = 452$) and identified as 76% Caucasian, 17.9%

Hispanic, 3.3% Asian, and 2.8% African American. In addition, 66% of participants were female and 44% were first generation college students.

Inclusion in the research study was restricted to participants 18 or older, and no additional criteria for inclusion or exclusion was employed. An *a priori* power analysis for multivariate analysis comparing three different groups based on six outcome variables ($\alpha = .05$, $1-\beta = .95$, $f^2 = .12$) indicated a minimum sample size of $N = 114$ to protect against inflated type I error. This approximates the *a priori* sample size requirement to conduct the correlation analyses within this study ($\alpha = .05$, $1-\beta = .95$, $r = .3$, $N = 111$) and was therefore used as the minimum standard for participant recruitment.

There is a long history of debate regarding the use of undergraduate participants in social science research (Lynch, 1982; Peterson, 2001; Wells, 1993). However, it has also been well argued that empirical studies designed for theory generalization rather than outcomes-based applications are appropriate to use with undergraduate populations since theorized models must go through a rigorous falsification process before being applied in support of real-world interventions (Calder, Phillips, & Tybout, 1981; Cacioppo et al., 1996). A similar viewpoint arises based on the etic perspective employed across the social sciences to determine universal human trends in behaviors, personalities, and beliefs (Cheung, van de Vijver, & Leong, 2011). In terms of dispositional studies more specifically, personality and social psychology researchers often extrapolate the results of individual differences studies and trait-based psychometric assessments to heterogeneous adult populations based on the etic perspective (McCrae & Allik, 2002; Rust & Golombok, 2014). As this study was designed for theory generalization stemming from

the use of individual differences measures, the researcher maintained that use of undergraduate participants to validate the orientation model was warranted.

Variables

Variables in the proposed model included: (a) rational-cognitive processing, (b) experiential-cognitive processing, (c) emotional cutoff, (d) emotional reactivity, (e) cognitive empathy, (f) emotional empathy, (g) reflection, and (h) rumination. The dependent (response) variables included rational-cognitive processing and experiential-cognitive processing. The independent (predictor) variables included emotional cutoff, emotional reactivity, cognitive empathy, emotional empathy, reflection, and rumination. Stemming from the tenets of the cognitive-experiential theory of dual-processing (Epstein, 2014), it was proposed that positive relationships would exist between rational-cognitive processing, emotional cutoff, cognitive empathy, and reflection, as well as between experiential-cognitive processing, emotional reactivity, emotional empathy, and rumination (Wilkinson, 2015; see Table 1).

Table 1

Hypothesized Analytic and Experiential Relationships among Subscales

Analytic Variables	Experiential Variables
Rational-Cognitive Processing	Experiential-Cognitive Processing
Emotional Cutoff/Attachment Avoidance	Emotional Reactivity/Attachment Anxiety
Cognitive Empathy	Emotional Empathy
Reflective Introspection	Ruminative Introspection

Both rational-cognitive processing and experiential-cognitive processing were measured using the Rational-Experiential Inventory (REI; Epstein et al., 1996) designed to assess subject self-perception of dispositional tendencies and general identification with analytic and intuitive dual-processing systems. Both emotional cutoff and emotional reactivity were measured using the Differentiation of Self Inventory-Revised (DSI-R; Skowron & Schmitt, 2003), designed to assess subject self-perception of dispositional tendencies related to emotional responsiveness in close personal relationships. Both cognitive empathy and emotional empathy were measured using the Interpersonal Reactivity Index (IRI; Davis, 1980), designed to assess participant self-perception of dispositional empathic tendencies and conditions of interpersonal awareness. Both reflection and rumination were measured using the Reflection and Rumination Questionnaire (RRQ; Trapnell & Campbell, 1999), designed to assess participant self-perception of dispositional self-focused attention as a function of either intellectual curiosity or chronic anxiety.

Research Questions

- Q1 Is there a linear relationship between the cognitive orientation subscales (as measured by the REI), the attachment orientation subscales (as measured by the DSI-R), the empathic orientation subscales (as measured by the IRI), or the introspective orientation subscales (as measured by the RRQ)?
- H1a No significant relationship will exist between cognitive orientation subscales.
- H1b A significant positive relationship will exist for attachment orientation subscales.
- H1c A significant positive relationship will exist for empathic orientation subscales.

- H1d No significant relationship will exist between introspective orientation subscales.
- Q2 Is there a relationship between analytic process subscales and experiential process subscales as multi-operationalized in the variable sets across the REI, DSI-R, IRI, and RRQ?
- H2a Positive relationships will exist across the four analytic process subscales.
- H2b Positive relationships will exist across the four experiential process subscales.
- Q3 How do attachment avoidance and attachment anxiety, as measured by the DSI-R, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?
- H3a For attachment avoidance scores in relation to Need for Cognition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.
- H3b For attachment anxiety in relation to Faith in Intuition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.
- Q4 How do cognitive empathy and emotional empathy, as measured by the IRI, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?
- H4a For cognitive empathy scores in relation to Need for Cognition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.
- H4b For emotional empathy scores in relation to Faith in Intuition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.
- Q5 How do reflective introspection and ruminative introspection, as measured by the RRQ, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?
- H5a For reflective introspection scores in relation to Need for Cognition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.

- H5b For ruminative introspection scores in relation to Faith in Intuition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.

Instruments

Insofar as psychological models typically incorporate a hypothesis-driven, theoretical foundation within which the model is grounded, static and atheoretical accounts of dispositional personality do not provide strong working models of individual psychological experience for clinical use (J. Block, 1995; Boyle, 2008; Cervone, 2005). Lack of such a structure might explain why such measures do not translate into solid frameworks for clinical use (Boyle, 2008; Epstein, 2010). In light of this possibility, a distinction should be made here between individual-difference measures seen in the personality literature and those found in other areas of counseling and psychology. The personality approach to measurement is most often exploratory factor analytic and variable-center focused, using an inter-individual, population variation format to develop categories and constructs from a large set of variables which portend to hold both descriptive and explanatory power (J. Block, 1995; Cervone, 2005). With historical and motivational nuances excluded, the uniqueness of the person is largely removed from the equation and replaced with broadly comparative, static behavioral definitions that are difficult to translate into subjective experiential terms (J. Block, 1995; Boyle, 2008).

Individual difference measures within other arenas of the counseling and psychology literature, however, are generally set within a model-based theoretical framework and strive to both examine and delineate well-defined intra-individual psychological phenomena via confirmatory factor analysis (Epstein, 2010). In terms of applicability for counseling, measures of this sort have a great deal to offer. Framing such

measures within associated models provides a theoretical context for the definitional parameters used (J. Block, 1995), thereby enhancing their functional utility in case conceptualizations. Absent the context of a theoretical model, we are left to interpret the results of a measure in a fairly arbitrary manner, thereby reducing its functional utility and subsequent usefulness in the counseling setting. Confirmatory factor analytic (CFA) measures of intra-individual differences carry a great deal more descriptive power because they are rooted in established theoretical frameworks which provide a solid foundation for real world applicability, the interpretation of maladaptive behaviors, and case conceptualization as a result. Each of the following measures was developed using CFA. Permission has been granted from the authors of the instruments for their use.

Rational-Experiential Inventory

The Rational-Experiential Inventory (REI; Epstein et al., 1996) was designed to assess individual differences in the habitual use of rational and experiential cognitions as a function of dual-processing capacities. It combines a modified version of the Need for Cognition (NFC) scale (Cacioppo & Petty, 1982) with a new experiential measure called the Faith in Intuition (FI) scale. While a more recent version of the REI includes additional sub-dimensions for both the NFC scale and the FI scale (Pacini & Epstein, 1999), the original rational-experiential structure of the REI fulfill the purposes set forth in the orientation model. The REI includes two primary long forms (REI-59, Epstein et al., 1996; REI-40 Norris, Pacini & Epstein, 1998), and a 10-item short form version (REI-SF, Epstein et al., 1996).

The REI-SF was used for this study and includes 10 items on a five-point Likert scale ranging from *not very true of me* to *very true of me*. (Epstein et al., 1996). The NFC

subscale includes five items such as “I prefer to challenge my thinking abilities rather than do things that require little thought” and “I prefer complex problems to simple problems.” The FI subscale includes five items such as “I believe in trusting my hunches” and “I can usually feel when a person is right or wrong, even if I can’t explain how I know.” Higher scores for either subscale indicate an increased level of self-perceived dispositional use of, and identification with, the identified cognitive processing capacity.

The original 34-item NFC was developed using a nonclinical sample of 419 undergraduate college students and yielded a Cronbach’s alpha value of .87. A follow-up study using a sample of 527 undergraduate college students (Petty, Cacioppo, & Kao, 1984) indicated that NFC scale reliability attained an asymptote with the 18 highest factor loading items, resulting in a new short-form version that correlated with the original scale ($r = .95, p < .001$) and had a higher Cronbach’s alpha value of .90. The five highest factor loading items of the NFC-SF were included in the REI-SF (Epstein et al., 1996), which correlated strongly with the original ($r = .90, p < .001$) and had a Cronbach’s alpha value of .73. Using the Spearman-Brown prophesy formula, it is suggested that the internal reliability would be .91 were the short form scales expanded to include the same number of items used in the original NFC-SF (Epstein, 2014). The five-item version of the NFC-SF as adapted for use in the REI-SF was used for this study.

The FI was developed as a counterpart to the NFC, based on the tenets of dual process theories, to ascertain whether measures of experiential-cognitive processing might be inversely related to measures of rational-cognitive processing (Epstein, 2014). The original 12-item FI was tested on a nonclinical sample of 184 undergraduate college students and yielded a Cronbach’s alpha of .77 and inter-item correlations of .23 (Epstein

et al., 1996). The five FI items designated as having the highest factor loading and item-total correlations were subsequently used in the REI-SF, with a strong correlation to the original FI scale ($r = .85, p < .001$) and a Cronbach's alpha value of .72 (Epstein et al., 1996). The five-item version of the FI as adapted for the REI-SF was used in this study.

Subsequent reliability and validity research on the REI have largely confirmed the original results; however, no follow-up studies have been conducted on the REI-SF.

Pacini and Epstein (1998) reported a Cronbach's alpha values of .87 for the composite REI in a study with 399 undergraduate college students. In more recent research, Björklund and Bäckström (2008) reported a Cronbach's alpha of .88 for the composite REI, found support for its factor structure using both confirmatory and exploratory factor analysis, and reported discriminant and concurrent validity based on correlations with other measures. Another more recent study provided evidence for the divergent and convergent validity of the REI, and also reported Cronbach's alphas for the NFC and FI scales of .88 and .86, respectively (Wittelman, van den Bercken, Claes, & Godoy, 2009).

Differentiation of Self Inventory-Revised

Skowron & Schmitt's (2003) Differentiation of Self Inventory-Revised (DSI-R) was designed as a multidimensional approach to gauging individual differences in four areas of interpersonal attachment. In modifying Bowen's original formulation to include these more distinctive and well-defined sub-dimensions, The DSI-R delineates two interpsychic (fusion with others and emotional cutoff) from two intrapsychic (I-position and emotional reactivity) functions of attachment experience. For the orientation measure, only the intrapsychic variable of emotional reactivity (ER) and the interpsychic variable of emotional cutoff (EC) function are utilized. The DSI measures includes an

original 43-item long form (Skowron & Friedlander, 1998), the revised 46-item long form (Skowron & Schmitt, 2003), and a nine-item short form (Drake, Murdock, Marszalek, & Barber, 2015).

The DSI-SF was used for this study and includes nine items on a five-point Likert scale ranging from *not very true of me* to *very true of me* (Drake et al., 2015). The EC subscale includes three items such as “I tend to distance myself when people get too close to me” and “When one of my relationships becomes very intense, I feel the urge to run away from it.” The ER subscale includes six items such as “At times my feelings get the best of me and I have trouble thinking clearly” and “If someone is upset with me, I can’t seem to let it go easily.” Higher scores for the subscales indicate an increased level of self-perceived dispositional use of, and identification with, either an avoidant (EC) or anxious (ER) attachment style.

The 46-item DSI-R was developed using a snowball sampling method that included the use of social media and family-oriented internet websites to accrue 225 adult participants and yield a Cronbach’s alpha values of .92 for the composite scale, .84 for the EC subscale, and .89 for the ER subscale (Skowron & Schmitt, 2003). Reliability and validity research on the DSI-R has demonstrated good internal reliability, with one study reporting a Cronbach’s alpha of .84 for the composite scale (Knauth & Skowron, 2004), and another reporting Cronbach’s alphas of .89 for the composite DSI-R, .82 for the EC subscale, and .88 for the ER subscale (Jankowski & Hooper, 2012). The latter study also reported convergent and discriminant validity for the DSI-R based on correlations with other measures of similar theoretical relevance (Jankowski & Hooper).

In developing the DSI-SF (Drake et al., 2015) a Graded Response Model (GRM) was used to determine appropriate item parameters for each of the subscales, and a good fit was reported for three of the EC subscale items ($G2[46] = 164.32, p < 0.01$) and six of the ER subscale items ($G2[136] = 131.27, p = .30$). The scale was assessed using 595 undergraduate college student and revealed a Cronbach's alpha value of .79 for the three-item EC subscale and .80 for the six-item ER subscale. Additionally, the convergent validity and test-retest reliability of the DSI-SF were reported. The nine-item DSI-SF was used for this study to assess dispositional tendencies towards attachment avoidance and attachment anxiety.

Interpersonal Reactivity Index

Davis' (1983) Interpersonal Reactivity Index (IRI) was designed as a multidimensional approach to gauging individual differences in four different forms of empathy: perspective-taking, empathic concern, personal distress, and fantasy transposition. For the purposes of the orientation model only two of the four are used since the sub-measures of perspective-taking (IRI-C) and empathic concern (IRI-E) are respectively taken to represent cognitive and affective dual-processing experiences of empathy. The cognitive perspective-taking subscale represents an ability to mentally take the viewpoint of other people while the emotional empathic concern subscale signifies feelings of concern for other people (Davis, 1980). The IRI-C and IRI-E subscales were therefore used for this study to assess dispositional tendencies in the use of cognitive empathy and emotional empathy.

The IRI consists of 28 items measured on a five-point Likert scale ranging from *does not describe me very well* to *described me very well*. The IRI-C subscale includes

seven items such as “I sometimes try to understand my friends better by imagining how things look from their perspective” and “When I’m upset at someone, I usually try to ‘put myself in their shoes’ for a while.” The IRI-E subscale consists of seven items such as “I often have tender, concerned feelings for people less fortunate than me” and “I would describe myself as a pretty soft-hearted person.” Higher scores for either subscales indicates an increased level of self-perceived dispositional use of, and identification with, cognitively-oriented empathic dual processing or affectively-oriented empathic dual-processing.

The 28-item IRI was developed using a nonclinical sample of 158 undergraduate college students and yielded Cronbach’s alphas of .78 for the composite instrument, .79 for the IRI-C subscale, and .80 for the IRI-E subscale (Davis, 1980). Numerous reliability and validity studies on the IRI have been conducted with similar results. Applied to a sample of 432 undergraduate students in Chile, researchers reported a Cronbach’s alpha of .73 for both the IRI-C and IRI-E subscale, as well as evidence for test-retest reliability, structural validity, and predictive validity of the composite IRI (Fernandez, Dufey, & Kramp, 2011). In cross-cultural research sampling from 641 Dutch adults, De Corte et al. (2007) reported Cronbach’s alphas of .73 for the IRI-C subscale and .73 for the IRI-E subscale, as well as evidence for construct validity, convergent validity, and discriminant validity. A French study using a nonclinical sample of 322 adults reported Cronbach’s alphas of .71 for the IRI-C subscale, .70 for the IRI-E subscale, and good test-retest reliability over a twelve month period (Gilet, Mella, Studer, Grünh, & Labouvie-Vief, 2013).

Reflection-Rumination Questionnaire

The Reflection and Rumination Questionnaire (RRQ; Trapnell & Campbell, 1999) was designed to distinguish between adaptive and maladaptive dimensions of self-focused attention. It also served to explain how the *self-absorption paradox* (i.e., heightened self-focus results in both enhanced self-knowledge and psychological maladjustment) arising from results in the private self-consciousness scale (Fenigstein, Scheier, & Buss, 1975) is attributable to the measurement of two distinct cognitive variables: reflection and rumination. The RRQ assesses for individual differences in these self-focused attention styles, whereby reflection signifies an introspective tendency that is motivated by intellectual curiosity while rumination is repetitive or chronic and motivated by “perceived threats, losses, or injustices to the self” (Trapnell & Campbell, 1999, p. 297). The reflection and rumination subscales of the 14-item RRQ short form was used for this study to assess dispositional tendencies towards cognitive introspection and emotional introspection.

The RRQ includes a 24-item version as well as a 14-item short-form, and both are measured on a five-point Likert scale ranging from *strongly disagree* to *strongly agree*. The short-form reflection subscale consists of seven items such as “It is easy for me to put unwanted thoughts out of my mind” and “I love to meditate on the nature and meaning of things.” The short-form rumination subscale includes seven items such as “I often reflect on episodes in my life that I should no longer concern myself with” and “Sometimes it is hard for me to shut off thoughts about myself.” Higher scores for either subscale indicate an increased level of self-perceived dispositional use of, and identification with, cognitive or emotional introspective tendencies.

The 24-item RRQ was developed across three studies using a combined nonclinical sample of 1,137 undergraduate college students, and reported Cronbach's alphas of .91 for the reflection subscale and .90 for the rumination subscale. Despite the relatively frequent use of the RRQ in empirical studies, few reliability and validity studies have been conducted. Uttl, Morin, and Hamper (2011) reported a Cronbach's alpha of .89 for the reflection subscale and .87 for the rumination subscale in a sample of 380 undergraduate college students. For the development of a Japanese-version of the RRQ, internal consistency and concurrent validity were evidenced among a sample of 241 undergraduate students, with a Cronbach's alpha of .89 for the reflection subscale and .88 for the rumination subscale (Takano & Tanno, 2009).

Procedures

Exempt status by the university's institutional review board (IRB) was approved for this study (Appendix I). Upon receiving IRB approval, participants were recruited from 19 sections of a first-year seminar course ($N = 452$). Access to this population was granted by the first-year seminar program director, who agreed to allow the survey to be uploaded onto all UNC-registered student Blackboard accounts (<http://unco.blackboard.com>) for the course using a designated, master webpage controlled by the program director. All students who participated in the first-year seminar utilized a course-specific Blackboard webpage, and the designated survey web-link was posted on that webpage for all first-year seminar students to access. The researcher posted a formal message (Appendix G) on the "Announcement" page of all first-year seminar students about the opportunity to complete the survey.

The researcher also sent this formal message out as a bulk email invitation to first-year seminar students using the master webpage bulk email database, with permission for access provided by the program director. Individual student information was protected in this process, as a single email was automatically sent to all potential participants in the first-year seminar course using a bulk emailing procedures. One follow-up bulk email invitations (Appendix H) was distributed eight days later to remind potential participants of the survey opportunity, during which time the survey remained openly accessible on the first-year seminar course Blackboard page. Although data on the total number of individual that accessed the survey was tallied by the Qualtrics survey software program, no identifying information for non-participants was accessible to either the researcher or the program director.

All participants were informed of the purpose of the study and that participation would be entirely voluntary. The measures (Appendices B, C, D, E) and the basic demographics questionnaire (Appendix F) were administered using a university-registered Qualtrics account (<http://unco.qualtrics.com>) established by the researcher. The informed consent to participate in research (Appendix A) was included on the first page of the online survey (Qualtrics – <http://unco.qualtrics.com>). The informed consent let participants know that choosing to continue in the survey by clicking “Start” implied both consent and that they attested to the fact that they were 18 years of age or older.

Information about the random drawing for two \$50.00 Amazon.com gift cards was provided on the second page of the online survey. Participants were required to complete all survey items in order to enter the prize drawing pool. Participants were also required to provide their first-year seminar course section number and the last four digits

of their university-registered Personal Digital Identity (PDID). All course section numbers were provided in a drop-down list and a numerical text box was provided for PDID four-digit numerical entries. The following statement was included on the second page of the survey to clarify participant entry requirements:

If you wish to enter the random prize drawing to win one of two possible \$50.00 Amazon.com gift cards, additional personal information is required so that a winner can be contacted. Please select your first-year seminar course section number and enter the last four digits of your official university PDID. If you do not want to participate in the prize drawing, please click on the box below labeled “No, I do not wish to participate in the random prize drawing”. All questions in this survey must be completed in order to enter the random prize drawing. Thank you for your participation.

The next five pages of the online survey included the researcher-developed demographics questionnaire and four instruments. The demographics questionnaire included entries for age, gender, and race/ethnicity (Appendix F). The four instruments included the Rational-Experiential Inventory (REI; 10 Likert-type items), the Differentiation of Self Inventory-Revised (DSI-R; 9 Likert-type items), the Interpersonal Reactivity Index (IRI, 14 Likert-type items), and the Reflection-Rumination Questionnaire (RRQ; 14 Likert-type items).

The researcher maintains that this study presented no additional risks beyond those typically associated with traditional surveys administered in academic and university settings. Study analyses did not investigate individual survey responses, but rather analyzed the data in aggregate. Participant names were not be used in any stage of the data collection process. Student PDID and course section number information provided to enter the random prize drawing were separated from all other data in a designated Excel spreadsheet to ensure participant confidentiality. Numeric identifiers were then randomly assigned to each completed survey following data collection in order to maintain both organization in the data entry process and participant confidentiality in

the data analysis process. Additional procedures were instituted to ensure that student data were kept confidential and secure. The online Qualtrics account in which survey responses were collected was both encrypted and password-protected. Survey data were entered into a password-protected computer file and securely stored on a university computer in the researcher's locked office on campus. This data file was also saved in an encrypted drive that was only accessible to the researcher.

Data Analysis

Following data collection, surveys were scored using the appropriate procedures for each instrument. All demographic information and instrument data were organized using an Excel spreadsheet and subsequently entered into SPSS version 22 for statistical analysis. The data were then analyzed for descriptive statistics such as means, standard deviations, and skewness for the four composite instruments as well as the eight subscales. Internal consistency estimates were calculated for each composite to assess reliability. The data were also assessed for violations of multivariate analysis assumptions and for missing values.

To address the first research question, bivariate correlation analyses were conducted to determine the degree and direction of relationships among subscales within each of the four composite instruments. To address the second research question, a canonical correlation analysis was conducted to determine the direction and magnitude of relationships between the predictor variables and the outcome variables. Since the second research question addressed the strength or degree of association between analytic and experiential constructs as latent variables within the model, a canonical correlation analysis was preferred over the use of a regression analysis of independent variables. By

comparing weighted sums of the two variable sets, the hypothesized linear combination of analytic and experiential subscales could be established as a correlation between the sets. Standardized canonical function coefficients, structure coefficients, squared structure coefficients, and redundancy estimates were analyzed to assess the variance of the original variables, and the results were reviewed for violations of normality, linearity, and homoscedasticity.

To address the remaining three research questions a factorial MANOVA was conducted. Participants were grouped into high, medium, and low categories based on percentile scores derived from the Need for Cognition (NC) and Faith in Intuition (FI) subscales of the REI. In order to maintain relatively equivalent group sizes and remain within the parameters of statistical test assumptions, about 33% of the participants were assigned to each respective category. A 3 (NC-REI) x 3 (FI-REI) factorial MANOVA was subsequently conducted on DSI-R, IRI, and RRQ composite scores. Finally, univariate post hoc Tukey tests were conducted to determine how the NC categories and the FI categories uniquely influence each of the six outcome variables across composite instrument scores.

Summary

A non-experimental survey design was used in this study to examine whether the four psychological constructs of cognitive processing, attachment, empathy, and introspection could be conceptually unified to develop a humanistic-existential counseling assessment for use in case conceptualization and treatment planning. Five hypotheses, guided by the tenets of dual process theory, were used to guide relevant determinations of the direction and magnitude of relationships among the instrument

variables. Data were collected from a sample of undergraduate college students using an online survey comprised of a researcher developed demographics questionnaire, a short form of the REI (Epstein et al., 1996), a short-form of the DSI-R (Drake et al., 2015; Skowron & Schmitt, 2003), the IRI (Davis, 1980), and a short-form of the RRQ (Trapnell & Campbell, 1999).

Data were analyzed in aggregate to address the guiding research questions and evaluate the hypotheses. Preliminary analyses included descriptive statistics for each of the variables as well as means, standard deviations, frequencies, skewness, and internal consistency reliability estimates. Hypothesis H1 was analyzed using bivariate correlation analyses. Hypothesis H2 was analyzed using canonical correlation analysis. Hypotheses H3, H4, and H5 were analyzed using a 3 x 3 factorial MANOVA, as well as post-hoc Tukey tests. In Chapter IV, the results of these analyses are described.

CHAPTER IV

RESULTS

This chapter presents the results of the quantitative analyses for this study. The first section provides information on participant demographics as well as descriptive statistics, multivariate normality, homogeneity of variances, and internal consistency estimates for the instruments. The second section presents results for the following five research questions. The final section provides a brief review of implications for the results of the study. The level of significance for all statistical analyses was $\alpha = 0.05$.

- Q1 Is there a relationship between paired constructs for the cognitive orientation (as measured by the REI), the attachment orientation (as measured by the DSI-R), the empathic orientation (as measured by the IRI), and the introspective orientation (as measured by the RRQ)?
- Q2 Is there a relationship between analytic processes and experiential processes as multi-operationalized in the variable sets across the REI, DSI-R, IRI, and RRQ?
- Q3 How do attachment anxiety and attachment avoidance, as measured by the DSI-R, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?
- Q4 How do cognitive empathy and emotional empathy, as measured by the IRI, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?

- Q5 How do reflective introspection and ruminative introspection, as measured by the RRQ, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?

Preliminary Analyses

Demographic Data

The sample consisted of 375 college freshmen from a medium-sized, Midwestern four-year research university in the United States. The survey response rate was 83%. All participants completed a researcher developed demographics questionnaire disclosing age, gender, and race/ethnicity (see Table 2). All participants reported being either 18 or 19 years of age. Participants that reported being under the age of 18 were automatically barred from completing the survey. Of the 375 participants, 251 reported being female (66.9%) and 124 reported being male (33.1%). This is comparable to the student gender distribution for the entire university – 63.5% female and 36.5% male – as of the fall of 2015. Most participants were Caucasian ($n = 257$; 68.5%), while others reported being Hispanic ($n = 83$; 22.1%), African American ($n = 20$; 5.3%), Asian ($n = 5$; 1.3%), Native American or Alaskan ($n = 1$; 0.3%), and several participants reported as *other* ($n = 9$; 2.4%) but did not specify their racial/ethnic identity.

Multivariate Normality

Prior to hypothesis testing, the data were assessed for outliers and normality distributions among the scores. Multivariate normality was assessed through a close examination of the univariate distributions due to the inherent complexities involved in assessing multivariate normality distributions (Kline, 2005). Using stem-and-leaf plots, seventeen outliers were discovered across the eight subscales and these values were

subsequently transformed using the Winsorizing method – or by substituting the actual value for the closest normative value – as recommended by Ghosh and Vogt (2012). This included five outlier scores of 1.0 for the REI-FI adjusted to the next lowest score of 1.6, three outlier scores of 5.0 for the DSI-EC adjusted to the next highest score of 4.5, three outlier scores of 4.6 for the DSI-ER adjusted to the next highest score of 4.2, one outlier score of 5.0 for the RRQ-Rf adjusted to the next highest score of 4.7, and five outlier scores of 1.3 for the RRQ-Rm adjusted to the next lowest score of 1.6.

Table 2

Demographic Characteristics of the Study Sample

		<i>N</i>	%
Age Group	18-19	375	100
	20+	0	0
Gender	Male	124	33.1
	Female	251	66.9
Race/Ethnicity	Caucasian	257	68.5
	Hispanic/Latino	83	22.1
	African American	20	5.3
	Asian	5	1.3
	Native American/Alaskan	1	0.3
	Other	9	2.4

Note. *N* = 375.

Subsequently analyzed histograms and box plots indicated that each of the variables were distributed normally around the mean. The values for both skewness and kurtosis were within an acceptable range for all subscales (Kline, 2005; West, Finch, & Curran, 1995), thus further supporting the graphical evidence for a normal distribution of scores (see Table 3). The absolute value of skewness for the DSI-EC proved to be highest among the subscales at 1.838, yet remained less than the absolute value of 2.0 as a moderate-level criterion (West et al., 1995). The absolute value of kurtosis for the REI-NC proved to be the highest among the subscales at 1.648, yet remained less than the absolute value of 2.0 as a moderate-level criterion for normally distributed data (Garson, 2012; Kline, 2005).

Table 3

Descriptive Statistics for Variables in the Orientation Model

	REI-NC	REI-FI	DSI-EC	DSI-ER	IRI-C	IRI-E	RRQ-Rf	RRQ-Rm
Mean	3.47	3.63	2.75	3.31	3.61	3.76	3.29	3.32
SD	.53	.50	.88	.77	.51	.54	.70	.66
Minimum	2.0	2.2	1.33	1.33	1.86	2.14	1.33	1.33
Maximum	4.8	4.8	4.66	4.83	4.86	4.86	4.83	4.88
Range	2.6	2.6	3.33	3.5	3.0	2.72	3.5	3.55
Skewness	-.017	-.036	.239	-.160	.003	.158	.150	-.027
Kurtosis	-.412	.348	-.230	-.322	.400	-.311	.059	-.078

Note. $N = 375$. Standard error for skewness was .13 and standard error for kurtosis was .25 for all scales.

Homogeneity of Covariance Matrices

Despite equal sample sizes, Box's M was assessed to establish equality of covariances and was found to be insignificant for all three MANOVAs and the canonical correlation analysis (CCA). This step was performed to ensure that the within-group covariance matrices were equal in accordance with the statistical assumptions required for both multivariate analyses of variance and canonical correlation analyses. Univariate homogeneity of variance was also tested for each dependent variable using Levene's test, which established the equality of error variances for all three MANOVAs.

For research question three, error variance was $F(8, 366) = 1.760, p = .084$ for the Emotional Cutoff subscale and $F(8, 366) = .780, p = .620$ for the Emotional Reactivity subscale. For research question four, error variance was $F(8, 366) = .681, p = .708$ for the Cognitive Empathy subscale and $F(8, 366) = 1.745, p = .087$ for the Emotional Empathy subscale. For research question five, error variance was $F(8, 366) = .981, p = .450$ for the Reflection subscale and $F(8, 366) = 2.289, p = .051$ for the Rumination subscale. With an equal number of participants in each group as well as Box's M and Levene's test proving insignificant, the robustness of the MANOVAs and CCA was ensured.

Reliability of Instruments

Beyond the demographic questionnaire, participants completed four self-report surveys to measure variables within the orientation model. These Likert-type surveys included measures of cognitive processing style (Rational Experiential Inventory; Epstein et al., 1996), attachment style (Differentiation of Self Inventory - Revised; Skowron & Schmitt, 2003), empathy style (Interpersonal Reactivity Index; Davis, 1983), and self-focused attention style (Reflection and Rumination Questionnaire; Trapnell & Campbell,

1999). Internal consistency estimates of reliability were derived using Cronbach's alpha scores, wherein the subscales ranged from .67 to .83 (see Table 4).

While the Cronbach's alpha of .67 for the REI-NC and the REI-FI subscales is somewhat lower than that found in previous studies, it is certainly comparable (Epstein et al., 1996) and a predictable consequence of test length (Schmitt, 1996). It has also been argued that the Spearman-Brown prophesy formula indicates a much higher internal reliability were the REI short-form expanded to the length of the REI long-form (Epstein et al., 1996). Although any such argument does not automatically offset the potential problem of reliability for the subscales, the face validity of the items do indicate a reasonable degree of unidimensionality and content coverage within their respective domains (Epstein, 2014; Schmitt, 1996).

Table 4

Reliability Information

Instrument	<i>N</i>	α
REI-Need for Cognition subscale	5	.674
REI-Faith in Intuition subscale	5	.672
DSI-Emotional Cutoff subscale	3	.779
DSI-Emotional Reactivity subscale	6	.812
IRI-Cognitive Empathy subscale	7	.726
IRI-Emotional Empathy subscale	7	.779
RRQ-Reflection subscale	6	.824
RRQ-Rumination subscale	8	.837

As for the remaining six subscales, internal reliability estimates were well within the acceptable range (i.e., above .70) for use in the social sciences (Knapp & Mueller, 2010) and were quite similar to results established across previous studies. As such, the current study lends additional empirical support to the established internal reliability estimates for the Differentiation of Self Inventory-Revised-Short Form (Drake et al., 2015), the Interpersonal Reactivity Index subscales (Davis, 1983), and the Reflection-Rumination Questionnaire subscales (Trapnell & Campbell, 1999).

Research Question One

- Q1 Is there a relationship between paired constructs for the cognitive orientation (as measured by the REI), the attachment orientation (as measured by the DSI-R), the empathic orientation (as measured by the IRI), and the introspective orientation (as measured by the RRQ)?
- H1a No significant relationship will exist for cognitive orientation subscales.
- H1b A significant positive relationship will exist for attachment orientation subscales.
- H1c A significant positive relationship will exist for empathic orientation subscales.
- H1d No significant relationship will exist for introspective orientation subscales.

It was hypothesized that significant positive relationships would exist between paired constructs for the attachment orientation and the empathic orientation, while no significant relationships would exist between paired constructs for the cognitive orientation and introspective orientation. The results supported these hypotheses. The Need for Cognition and Faith in Intuition subscales of the REI were not significantly correlated ($r = .047, p = .366$), and neither were the reflection and rumination subscales of the RRQ ($r = .058, p = .266$). The emotional cutoff and emotional reactivity subscales

of the DSI-R were significantly positively correlated ($r = .328, p < 0.01$), as were the cognitive and emotional empathy subscales ($r = .451, p < 0.01$). A correlation matrix of the eight variables was analyzed and the resulting Pearson product-moment correlations are found in Table 5.

Additionally, the lack of a statistically significant correlation between the Need for Cognition and Faith in Intuition subscales effectively resolved potential concerns as to the assumption of multicollinearity in the canonical correlation analysis for research question two.

Table 5

Correlation Matrix for the Orientation Model Variables

	REI-NC	REI-FI	DSI-EC	DSI-ER	IRI-C	IRI-E	RRQ-Rf	RRQ-Rm
REI-NC	1	.05	-.15**	-.15**	.31**	.15**	.32**	-.15**
REI-FI		1	-.10*	-.11*	.01	.01	.02	-.07
DSI-EC			1	.33**	-.09	-.08	-.08	.34**
DSI-ER				1	.10*	.32**	.05	.62**
IRI-C					1	.45**	.39**	-.09
IRI-E						1	.33**	.21**
RRQ-Rf							1	.06
RRQ-Rm								1

Note. $N = 375$. * indicates correlation is significant at $p < 0.05$ level. ** indicates correlation is significant at $p < 0.01$ level. Bivariate correlations assessed for research question 1 are bolded.

Research Question Two

- Q2 Is there a relationship between analytic processes and experiential processes as multi-operationalized in the variable sets across the REI, DSI-R, IRI, and RRQ?
- H2a Positive relationships will exist across the four analytic process subscales.
- H2b Positive relationships will exist across the four experiential process subscales.

A canonical correlation analysis (CCA) was conducted to determine the relationships among the hypothesized analytic and experiential variable sets. The CCA revealed three statistically significant functions with squared canonical correlations of .289, .162, and .030 (R^2). The Wilk's lambda for the complete model was statistically significant at .577, $F(16, 1121.84) = 13.79, p < .001$, thereby making the R^2 type effect size approximately .42 for the full model. As such, 42% of the shared variance between the two sets of variables is explained by the model.

Function 2 to 4 was statistically significant at .81, $F(9, 895.77) = 8.85, p < .001$, explaining about 16% of the shared variance. Function 3 to 4 was also significant at .97, $F(4, 738) = 2.82, p = .024$, explaining about 3% of the shared variance. Function 4 to 4 was statistically insignificant. Considering the R^2 for each successive function, only the first and second functions were regarded as important indicators of underlying synthetic variables in the study. Standardized canonical function coefficients, structure coefficients, and squared structure coefficients for Function 1 and Function 2 are found in Table 6.

As hypothesized, the structure coefficients for each of the predictor variables were significantly related to Function 1, along with the unspecified inclusion of emotional empathy ($r = -.802$). The structure coefficients for all variables were negative aside from emotional cutoff. This aligns conceptually with the negative implications of high

attachment avoidance scores insofar as the orientation model predicts that high participant scores on need for cognition, cognitive empathy, and reflection should directly correspond with low attachment avoidance scores. The structure coefficients for three of the four criterion variables were significantly related to Function 2, along with the unspecified inclusion of emotional cutoff ($r = -.748$). Faith in Intuition was not significantly related to any canonical functions in the model. Within Function 2, the structure coefficients were negative for all hypothesized experiential variables.

Table 6

Canonical Solutions for Hypothesized Analytic and Experiential Variable Sets

Variable	Function 1			Function 2		
	<i>Coef</i>	<i>r</i>	r^2 (%)	<i>Coef</i>	<i>r</i>	r^2 (%)
REI-NC	-.100	-.455	19.80	.415	.264	6.97
REI-FI	-.031	-.108	1.17	.132	.217	4.71
DSI-EC	.451	.545	29.70	-.759	-.748	55.95
DSI-ER	.110	.149	2.22	-.679	-.938	87.98
IRI-C	-.719	-.860	73.96	-.490	-.424	17.98
IRI-E	-.948	-.802	64.32	-.273	-.537	28.84
RRQ-Rf	-.175	-.521	27.14	-.339	-.338	11.42
RRQ-Rm	.537	.409	16.73	-.253	-.743	55.21

Note. Structure coefficients (r) greater than $|\text{.45}|$ are bolded. *Coef* = standardized canonical function coefficient; r = structure coefficient; r^2 = squared structure coefficient.

The redundancy analysis within CCA indicates the strength of canonical cross loadings between the predictor and criterion variables. As seen in Table 7, the only variable with a statistically significant adequacy coefficient in the redundancy analysis was cognitive empathy. This stems from the relative degree of multicollinearity between cognitive and emotional empathy variables in conjunction with the significant relationship of emotional empathy to both canonical variates seen in Table 5. Otherwise, the redundancy analysis lends further support to the hypothesis that there is a unique relationship among analytic processes and among experiential processes within the orientation model.

The CCA lends some clearly interpretable support to the hypothesis that the four analytic process subscales are uniquely related, thereby resulting in Hypothesis 2a being accepted. The results for the experiential process subscales are not so clear. The exclusion of the faith in intuition variable from any significant findings indicates that this measure is not significantly related to either the hypothesized analytic or the hypothesized experiential variable sets. As such, Hypothesis 2b was rejected. However, there is a notably significant relationship among the other hypothesized experiential variables which, combined with the lack of significant cross loadings, indicates that there is indeed an overarching conceptual distinction to be drawn between the analytic and experiential variable sets despite the statistical insignificance of the Faith in Intuition subscale within the model.

Table 7

Redundancy Analysis Results for Hypothesized Analytic and Experiential Variable Sets

	Predictor Variables Set				Criterion Variables Set			
	REI-NC	DSI-EC	IRI-C	RRQ-Rf	REI-FI	DSI-ER	IRI-E	RRQRm
V1	-.239	.293	-.462	-.280	-.058	.080	-.431	.220
V2	.106	-.301	-.171	-.136	.087	-.378	-.216	-.299

Note. V1 = Variate 1; V2 = Variate 2; adequacy coefficients greater than $|\lambda|.45|$ are bolded.

Research Question Three

Q3 How do attachment anxiety and attachment avoidance, as measured by the DSI-R, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?

H3a For attachment avoidance scores in relation to Need for Cognition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.

H3b For attachment anxiety in relation to Faith in Intuition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.

A 3 x 3 factorial multivariate analysis of variance (MANOVA) was conducted to determine whether categorical levels of intensity (low, medium, and high scores) on both the Need for Cognition subscale and the Faith in Intuition subscale of the REI predict variations in the estimated marginal means for attachment anxiety and attachment avoidance scores on the DSI-R, respectively. A significant difference was not found between need for cognition and attachment patterns (Wilk's $\lambda = .980$, $F(4, 730) = 1.859$, $p < .116$), nor between faith in intuition and attachment patterns (Wilk's $\lambda = .982$, $F(4, 730) = 1.625$, $p < .166$).

However, as seen in Table 8, the test of between subjects' effects indicated that need for cognition predicts attachment avoidance ($F = 3.072, p < .048$) but not attachment anxiety ($F = 1.088, p = .159$), while faith in intuition predicted neither attachment avoidance ($F = .929, p = .396$) nor attachment anxiety ($F = 2.875, p = .058$). A post hoc one-way Tukey test revealed that both low ($p = .019$) and high ($p < .001$) scores were significantly different on the Need for Cognition subscale in regard to the variable of emotional cutoff. Since the relationship between the Faith in Intuition subscale and attachment anxiety was not statistically significant, Hypothesis H3b was rejected.

Table 8

Factorial Multivariate Analysis of Variance: Rational Experiential Inventory and Differentiation of Self Inventory-Revised Subscales

Source	Dependent Variable	Type III SS	Df	F	<i>p</i>
REI-NC	DSI-EC	4.919	2	3.072	.048
	DSI-ER	2.175	2	1.851	.159
REI-FI	DSI-EC	1.421	2	.929	.396
	DSI-ER	3.385	2	2.875	.058

Note. $N = 125$; significant differences, based on $p < .05$, are bolded.

Table 9

Estimated Marginal Means: High, Medium, and Low Scoring Groups on the Need for Cognition Subscale in Relation to the Differentiation of Self Inventory-Revised

Dependent Variable	Need for Cognition	<i>M</i>	<i>SE</i>	95% CI Lower Bound	95% CI Upper Bound
DSI-EC	Low	2.884	.079	2.729	3.040
	Medium	2.715	.079	2.559	2.870
	High	2.614	.081	2.455	2.773
DSI-ER	Low	3.398	.069	3.261	3.534
	Medium	3.326	.069	3.189	3.462
	High	3.214	.071	3.074	3.353

Note. *N* = 125; DSI-EC = Emotional Cutoff subscale; DSI-ER = Emotional Reactivity subscale.

The estimated marginal means (see Table 9) of the need for cognition subscale in relation to attachment avoidance scores indicated that means for the high scoring group were smaller than for the medium scoring group, which in turn had smaller means than the low scoring group (high: 2.614, medium: 2.715, low: 2.884), indicating that higher need for cognition scores correspond with lower attachment avoidance scores. Although categorical levels of intensity on the Need for Cognition subscale impacted self-reported cognitive empathy, the actual direction of influence was inverse to the predicted direction and therefore Hypothesis H3a was rejected.

Research Question Four

- Q4 How do cognitive empathy and emotional empathy, as measured by the IRI, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?

- H4a For cognitive empathy scores in relation to Need for Cognition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.
- H4b For emotional empathy scores in relation to Faith in Intuition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.

A 3 x 3 factorial multivariate analysis of variance (MANOVA) was conducted to determine whether categorical levels of intensity (low, medium, and high scores) on both the Need for Cognition subscale and the Faith in Intuition subscale of the REI predict variations in the estimated marginal means for cognitive empathy and emotional empathy scores on the IRI. A significant difference was found between need for cognition and empathy patterns (Wilk's $\lambda = .926$, $F(4, 730) = 7.111$, $p < .001$), but not between faith in intuition and empathy (Wilk's $\lambda = .998$, $F(4, 730) = .139$, $p < .968$).

As seen in table 10, the test of between subjects' effects indicated that need for cognition significantly predicts both cognitive empathy ($F = 14.454$, $p < .001$) and emotional empathy ($F = 3.488$, $p < .032$), but faith in intuition is predictive of neither cognitive ($F = .067$, $p = .935$) nor emotional ($F = .145$, $p = .865$) empathy. A post hoc one-way Tukey test revealed that both low ($p < .001$) and medium ($p < .001$) scores were significantly different on the Need for Cognition subscale in relation to cognitive empathy. Additionally, low and high scores ($p = .014$) were significantly different on the Need for Cognition subscale for the measure of emotional empathy. Insofar as the relationship between the Faith in Intuition subscale and emotional empathy was not statistically significant, Hypothesis H4b was rejected.

Table 10

Factorial Multivariate Analysis of Variance: Rational Experiential Inventory and Interpersonal Reactivity Index Subscales

Source	Dependent Variable	Type III SS	Df	F	<i>p</i>
REI-NC	IRI-C	6.864	2	14.454	.001
	IRI-E	2.007	2	3.488	.032
REI-FI	IRI-C	.032	2	.067	.935
	IRI-E	.083	2	.145	.865

Note. $N = 125$; significant differences, based on $p < .05$, are bolded.

The estimated marginal means (see Table 11) of the need for cognition subscale in relation to cognitive empathy scores indicated that means for the high scoring group were larger than for the medium scoring group, which in turn had larger means than the low scoring group (high: 3.793, medium: 3.583, low: 3.458). The same patterns was found for the Need for Cognition subscale relative to emotional empathy scores (high: 3.858, medium: 3.735, low: 3.679), indicating that higher need for cognition scores also correspond with higher emotional empathy scores. Since categorical levels of intensity on the need for cognition subscale influenced self-reported cognitive empathy, Hypothesis H4a was accepted.

Table 11

Estimated Marginal Means: High, Medium, and Low Scoring Groups on the Need for Cognition Subscale in Relation to the Interpersonal Reactivity Index Subscales

Dependent Variable	Need for Cognition	<i>M</i>	<i>SE</i>	95% CI Lower Bound	95% CI Upper Bound
IRI-C	Low	3.458	.044	3.371	3.544
	Medium	3.583	.044	3.496	3.669
	High	3.793	.045	3.704	3.881
IRI-E	Low	3.679	.048	3.583	3.774
	Medium	3.735	.049	3.639	3.830
	High	3.858	.049	3.761	3.955

Note. *N* = 125; IRI-C = Cognitive Empathy subscale; IRI-E = Emotional Empathy subscale.

Research Question Five

- Q5 How do reflective introspection and ruminative introspection, as measured by the RRQ, relate to categorical levels of intensity (low, medium, and high scores) on the Need for Cognition subscale and Faith in Intuition subscale of the REI?
- H5a For reflective introspection scores in relation to Need for Cognition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.
- H5b For ruminative introspection scores in relation to Faith in Intuition, the mean will be larger for high intensity scores than for medium intensity scores, which will in turn be larger than for low intensity scores.

A 3 x 3 factorial multivariate analysis of variance (MANOVA) was conducted to determine whether categorical levels of intensity (low, medium, and high scores) on both the Need for Cognition subscale and the Faith in Intuition subscale of the REI predict

variations in the estimated marginal means for reflective introspection and ruminative introspection scores on the RRQ. A significant difference was found between need for cognition and introspective patterns (Wilk's $\lambda = .895$, $F(4, 730) = 10.446$, $p < .001$), but not between faith in intuition and introspective patterns (Wilk's $\lambda = .990$, $F(4, 730) = .905$, $p = .460$).

Table 12

Factorial Multivariate Analysis of Variance: Rational Experiential Inventory and Reflection-Rumination Questionnaire Subscales

Source	Dependent Variable	Type III SS	Df	F	<i>p</i>
REI-NC	RRQ-Reflection	15.037	2	16.582	.001
	RRQ-Rumination	2.835	2	3.319	.037
REI-FI	RRQ-Reflection	1.009	2	1.113	.330
	RRQ-Rumination	.693	2	.811	.445

Note. $N = 125$; significant differences, based on $p < .05$, are bolded.

As seen in Table 12, the test of between subjects' effects indicated that need for cognition predicts both reflection ($F = 16.582$, $p < .001$) and rumination ($F = 3.319$, $p < .037$), but faith in intuition is predictive of neither reflection ($F = 1.113$, $p = .330$) nor rumination ($F = .811$, $p = .445$) empathy. A post hoc one-way Tukey test revealed that both low ($p < .001$) and medium ($p < .001$) scores were significantly different on the Need for Cognition subscale in regard to reflective introspection. Additionally, low and high scores were significantly different ($p = .021$) on the Need for Cognition subscale for

the measure of ruminative introspection. Since the relationship between the Faith in Intuition subscale and rumination was not statistically significant, Hypothesis H5b was rejected.

Table 13

Estimated Marginal Means: High, Medium, and Low Scoring Groups on the Need for Cognition Subscale in Relation to the Reflection-Rumination Questionnaire Subscales

Dependent Variable	Need for Cognition	<i>M</i>	<i>SE</i>	95% CI Lower Bound	95% CI Upper Bound
RRQ-Rf	Low	3.077	.061	2.957	3.197
	Medium	3.217	.061	3.097	3.337
	High	3.564	.062	3.442	3.687
RRQ-Rm	Low	3.402	.059	3.286	3.518
	Medium	3.356	.059	3.239	3.472
	High	3.194	.060	3.076	3.313

Note. *N* = 125; RRQ-Rf = Reflection subscale; RRQ-Rm = Rumination subscale.

The estimated marginal means (see Table 13) of the Need for Cognition subscale in relation to introspective reflection scores indicated that means for the high scoring group were larger than for the medium scoring group, which in turn had larger means than the low scoring group (high: 3.564, medium: 3.217, low: 3.077). The inverse was found among the need for cognition groups relative to introspective rumination scores (high: 3.194, medium: 3.356, low: 3.402), indicating that higher need for cognition scores

also correspond with lower rumination scores. Since categorical levels of intensity on the Need for Cognition subscale influenced self-reported introspective reflection, Hypothesis H5a was accepted.

Summary

In this chapter, the study results were reported along with preliminary analyses of demographic data, descriptive statistics, and tests of relevant statistical assumptions. All hypotheses were accepted for research question one. For research question two, Hypothesis 2a was accepted while Hypothesis 2b was rejected. For research questions three, four and five, Hypotheses 3a, 4a, and 5a related to the Need for Cognition subscale were accepted while Hypotheses 3b, 4b, and 5b related to the Faith in Intuition subscale were rejected. Generally speaking, the results indicate that experiential cognition is inadequately represented by the Faith in Intuition subscale. All related hypotheses were thus rendered insignificant despite the apparent relationship of the other hypothesized experiential variables to one another as well as one of the latent canonical variates.

However, analytic cognition appears to be significantly related to nearly all of the orientation model variables while simultaneously representing a significant portion of the shared variance for one of the latent canonical variates. This unexpected result creates a series of important questions and potential interpretations of the current study that will be subsequently reviewed. An overview and interpretation of current study results is provided in the next chapter, along with a review of implications for clinical practice, limitations of the study, and directions for future research.

CHAPTER V

DISCUSSION

This chapter provides a summary and discussion of the data analyses as well as the implications and limitations of this study. The first section summarizes the quantitative results of the study in light of the theoretical framework of the orientation model and the broader literature on dual process theories. The second section considers clinical and educational implications for the use of the orientation model in mental health settings, supervision practices, and academic research. The final sections explore the limitations of this study and considers future directions for research.

Summary of the Study

The purpose of this study was to validate the structure of the proposed orientation model by exploring the relationships among its variables. Modeled within a dual process framework, it was hypothesized that the two subscales among each of four distinct composite instruments can be used to distinguish between analytic and experiential cognitive processing tendencies. The primary constructs include measures of rational and intuitive cognition styles, emotional cutoff and emotional reactivity attachment styles, cognitive and emotional empathy styles, and reflective and ruminative introspection styles. Accordingly, the orientation model proposes that dispositional tendencies towards

rational cognition, emotional cutoff, cognitive empathy, and reflective introspection are interrelated by means of analytic dual-processing, whereas such dispositional tendencies towards intuitive cognition, emotional reactivity, emotional empathy, and ruminative introspection are interrelated by means of experiential dual-processing (Wilkinson, 2015).

While dispositional cognitive tendencies are a hallmark of the literature on dual-processing, three of the four constructs and corresponding measures used in the orientation model were not developed with dual process theories in mind. These instruments included the Differentiation of Self Inventory–Revised (DSI-R; Skowron & Schmitt, 2003), the Interpersonal Reactivity Index (IRI; Davis, 1980), and the Reflection-Rumination Questionnaire (RRQ; Trapnell & Campbell, 1999). The current study thus sought to investigate whether these dispositional measures of attachment, empathy and introspection might inadvertently gauge dual-processing tendencies. It was therefore surmised that the Rational-Experiential Inventory (REI; Epstein et al., 1996) - explicitly designed using a dual-processing framework - would effectively serve as a conceptual point of reference by which to ascertain the validity of the overarching hypothesis driving the orientation model.

The sample consisted of 375 undergraduate freshmen at a medium-sized, Midwestern research university. All participants were administered the researcher developed demographics questionnaire as well as the four composite instruments used with the orientation model. Bivariate correlations of the sub-measures within each of the four composite instruments replicated the well-established findings for each instrument and thus lend further support to the existing literature on each measure. Assumptions for

all subsequent analyses in the study were tested, including multivariate normality and the homogeneity of covariance matrices. The results of the subsequent canonical correlation analysis and factorial MANOVAs are discussed in detail below.

Latent Variables Underlying the Orientation Model

A canonical correlation analysis (CCA) was conducted to determine whether the hypothesized relationships among the analytic and experiential variable sets were valid. Overall, two significant canonical functions were derived from the analysis wherein significant structure coefficients for each set of variables generally aligned with the hypothesized distinction between analytic and experiential dual-processing tendencies. Analytic cognition, emotional cutoff, cognitive empathy, and reflective introspection were all significantly related to Function 1, albeit with the inclusion of emotional empathy. However, emotional empathy was also significantly related to Function 2 along with emotional reactivity and ruminative introspection, as well as the variable of emotional cutoff. The direction of these significant relationships lends support to the overarching hypothesis that the variables are generally distinguishable as analytic and experiential dual-processing sets that align with Function 1 and Function 2, respectively.

The degree to which cognitive and emotional empathy both influence the shared variance of analytic cognition while emotional cutoff and emotional reactivity both influence experiential cognition is a consequence of the positive correlations found among the subscales. However, it also poses a conceptual dilemma as to whether the canonical functions are actually indicative of analytic and experiential tendencies. An alternative interpretation might be that Function 1 represents positive self-regard related to adaptability and perceptiveness while Function 2 represents self-perceived emotional

vulnerability and sensitivity. This would also account for the significant cross loadings found among both the empathy and the attachment variables. Such an interpretation remains aligned with the thinking/feeling dichotomy as proposed by the orientation model (Wilkinson, 2015), albeit distinct from the hypotheses set forth in this particular study due to the positive and negative affective valences thus attributed to each set of variables.

The lack of significance of the experiential cognition variable does pose a distinct concern for the orientation model. Considered in the context of the alternative interpretation of the canonical functions as noted above, it seems likely that the Faith in Intuition subscale used to measure experiential cognitions is unrelated to either emotional vulnerability or sensitivity. Rather, it appears to more closely relate to constructs such as latent self-awareness and unconscious insight, which actually corresponds with an interpretation presented by Epstein (2014) regarding the psychoanalytic notions that influenced the scale's original development. By framing analytic and experiential tendencies in terms of conscious and unconscious awareness rather than the distinction between controlled and automatic cognitions used by most modern dual-process theorists, the Faith in Intuition subscale appears to gauge a form of experiential processing distinct from emotional vulnerability or sensitivity, and therefore unrelated to the hypothesized experiential variables as implemented in the orientation model.

This interpretation sheds light on the insignificance of the Faith in Intuition subscale in relation to all subsequent analyses conducted for this study. In addressing research questions three, four, and five, the Faith in Intuition subscale proved to have no significant differences. The fact that the primary scale used to measure the construct of

experiential processing in this study did not significantly relate to any of the other hypothesized experiential variables only serves to further substantiate the notion that it may measure a distinct form of experiential processing related to unconscious insight. However, the benefit derived from this interpretation is that the orientation model would benefit from either the inclusion of an alternative assessment of intuitive cognition or the development of a scale that utilizes automatic cognitive processing rather than a form of unconscious insight as its foundational construct.

Categorical Levels of Intensity for Analytic Cognition

Although the Faith in Intuition subscale provided no significant results across analyses in this study, the need for cognition scale contributed more significantly to the findings than was expected. The results of three separate factorial MANOVAs indicated that the analytic cognition variable measured using the Need for Cognition subscale is a significant predictor of not only emotional cutoff, cognitive empathy, and reflective introspection, but emotional empathy and ruminative introspection as well. Based on percentile scores, participants were grouped into low, medium, and high scoring conditions derived from their Need for Cognition subscale means, resulting in equal sample sizes for all categories ($n = 125$). These categorical levels of analytic cognition intensity were subsequently used to determine both the significance and direction of participant mean scores for the dependent variables in each analysis. Across all groupings, the categorical levels of analytic cognition intensity aligned with the direction of dependent variables scores as hypothesized within the orientation model (Wilkinson, 2015).

For attachment avoidance, an increase in categorical levels of analytic cognition intensity corresponded with a lowering of mean scores on the emotional cutoff subscale. This indicates that as the dispositional use of analytic cognition increases, the use of emotional cutoff as a maladaptive coping mechanism tends to decrease. Such a result aligns with the conceptual tenets of self-differentiation, which maintains that attachment avoidance strategies such as emotional cutoff are used less often when healthy interpersonal boundaries are more effectively implemented, cognitive flexibility is enhanced, and affective resilience increases (Bowen, 1978; Skowron & Friedlander, 1998). Interestingly, analytic cognition similarly predicted the direction of mean scores for emotional reactivity despite the lack of overall statistical significance between the two variables.

For the measure of empathy, an increase in categorical levels of analytic cognition intensity corresponded with an increase of mean scores for both the cognitive and emotional empathy subscales. As further evidenced in the canonical correlation analysis, both empathy variables were significantly related to analytic cognition while the direction of the relationship was similarly associated. As such, increases in the dispositional use of analytic cognition correspond with increases in both cognitive and emotional empathy. The orientation model maintains that optimal mental health functioning should involve an increase in both forms of empathy as well as analytic cognition (Wilkinson, 2015). Furthermore, research has shown that the consistent use of both cognitive and emotional empathy leads to increases in positive coping (Davis, 1996) and healthy interpersonal functioning (Baron-Cohen, 1995).

For the measure of introspection, an increase in categorical levels of analytic cognition intensity corresponded with an increase of mean scores for the reflective introspection subscale and a decrease of mean scores for the ruminative introspection subscale. In other words, an increase in the dispositional use of analytic cognition is associated with both an increase in reflective introspection and a decrease in ruminative introspection. According to the orientation model, optimal mental health functioning should result in just such a distinction (Wilkinson, 2015). Reflection is generally associated with positive psychological outcomes related to intellectual curiosity (Trapnell & Campbell, 1999) and cognitive adaptability (Marks, Sobanski, & Hine, 2010). The habitual use of ruminative introspection, on the other hand, is related to maladaptive psychological outcomes such as anxiety and depression (Watkins, 2008) as well as affective immersion in negative emotions (Kross, Ayduk, & Mischel, 2005).

Interpretation of the Orientation Model Structure Based on Results of the Study

These three sets of results lend further support to the alternative hypothesis that was established above based on the CCA interpretation. Rather than view the proposed analytic and experiential variables sets according to the dual-processing distinction between automatic and controlled cognitive processing tendencies, there is room to consider whether these variable sets are actually indicative of self-perceived adaptability and vulnerability, respectively. As a descriptive tool for gauging mental health outcomes, this interpretation may provide a richer foundation than a strictly dual process-based account alone. The orientation model predicted the direction of subscale scores for both optimal and sub-optimal mental health outcomes (Wilkinson, 2015). Insofar as the

analytic cognition results for research questions three, four, and five in this study directly correspond with the predictions set forth in the orientation model, the present study lends additional credibility to the underlying premises that guide the model.

Researchers tend to weave positive mental health outcomes inextricably together with concepts such as resiliency and adaptiveness as protective psychological factors (Fredrickson, 2001; Seligman & Csikszentmihalyi, 2014). In kind, deficits in resiliency and adaptiveness are often discussed in relation to maladaptive coping strategies and emotional dysregulation (Seligman & Csikszentmihalyi, 2014), as well as being considered in the context of emotional vulnerabilities and related psychopathologies (Berking & Wupperman, 2012; Vaillant, 2000). If the orientation model indeed gauges the degree to which participants perceive themselves as either maintaining or lacking in psychological resiliency and adaptiveness, then its results provide a descriptive account of mental health and well-being rather than an explanatory account of dual-processing tendencies.

For the purposes of measuring progress in counseling and supervision, this has its obvious benefits. Providing counselors and supervisors with a tool to assess the severity of self-perceived emotional vulnerabilities in particular domains can enhance the specificity of case conceptualizations and interventions designed to promote growth in those areas. However, it runs counter to the prevailing idea among dual process theorists that analytic and experiential dual-processing tendencies are conceptually independent of value assessments (Evans, 2010). In other words, analytic and experiential cognitions should not be considered in terms of either positive or negative mental health outcomes. While a dispositional tendency towards the use of experiential cognitions may logically

correspond with the use of affective-oriented coping strategies, such strategies are not inherently flawed and their outcomes should not necessarily be deemed as maladaptive simply due to their affective bent (Epstein, 2014).

At the same time, the face validity of experiential measures used within the orientation model lean toward an emphasis on negative emotional consequences. Items such as “I’m overly sensitive to criticism” on the emotional reactivity subscale, or “Sometimes it is hard for me to shut off thoughts about myself” on the ruminative introspection subscale clearly demonstrate maladaptive mental health outcomes. This disparity between the value independent premises of dual-processing and the positive-negative valences attributable to some of the experiential measures within the orientation model raises a concern as to whether experiential processes can be quantified independently of negative emotional consequences. It has been argued by some theorists that experiential dual-processing tendencies are not measurable due to their being automatic and uncontrolled (Evans, 2010; Stanovich, 2011). The spontaneous and reactive nature of such cognitions - looming outside of immediate awareness - may preclude their quantification.

As an alternative, it could be that relatively low scores across the analytic variables within the orientation model would provide a better indication of experiential processing tendencies than a separate set of experiential scales. This would be a case of a lack of analytic processing serving as an indicator for experiential processing as the only logical alternative. In other words, if one does not display a tendency to rely upon analytic cognitions under stressful conditions then their habitual tendency will likely be towards more automatic and experiential methods of coping. The predictive capacity of

the Need for Cognition subscale as evidenced in this study would suggest that it may provide a more reliable basis for discriminating between analytic and experiential dual-processing tendencies. Pragmatically speaking, it would serve the same function as an experiential cognition subscale and reduce the total number of survey items in the orientation model. Yet it should be noted that there is no current research evidence to suggest that a deficit in analytic cognition necessarily reflects a surfeit in experiential cognition, or vice versa (Epstein, 2014; Epstein et al., 1996).

Implications

The orientation model was primarily designed as an assessment tool to supplement case conceptualization practices in clinical practice. Merging several notable and empirically-validated instruments into a single measure of dual-processing tendencies, the model provides counselors with a means to assess important dispositional characteristics of clients early in the treatment process. This is particularly relevant for practitioners who are philosophically opposed to the use of quantitative measures, as is often the case among humanistic counselors. Dual processing capacities are clinically atheoretical insofar as any dispositional tendency to utilize analytic or experiential cognitions is unrelated to either positive or negative psychological outcomes. Such an equivocation inappropriately reduces the complexity of dual-process systems into an adaptive and maladaptive dichotomy.

However, the results of the current study might be interpreted as pointing to just such an equivocation. In light of these findings it is important to address two conceptual concerns related to such an interpretation of the orientation model. First, any proposed thinking/feeling dichotomy is an oversimplification of the dual-processing framework.

This point cannot be overstated and was clearly addressed by Wilkinson (2015) when developing the model. While there is indeed an emotional element associated with experiential tendencies, affect is not the *de facto* foundation for all such processing capacities. Experiential processing remains a form of cognition that conceptually subsumes affect as a distinct process therein. In so doing, affect is not reducible to mere reactivity or maladaptive responsiveness. Instead it encapsulates a range of behavioral control mechanisms including certain forms of emotional regulation and implicit learning (Gawronski, Sherman, & Trope, 2014; Stanovich et al., 2014).

The purpose of the thinking/feeling dichotomy is to simplify the conceptual framework such that a detailed knowledge of dual-process theories is not required to interpret results derived from the orientation model. A problem arises, however, when *feeling* is simply equated with a lack of inhibitory control or tendencies toward emotional dysregulation. Dual-process theories explicitly highlight the vital role of both analytic and experiential processing in emotional dysregulation. The capacity of analytic processes to override experiential processes involves decoupling, or the ability to sustain hypothetical reasoning and cognitive simulation operations despite the high resource demands required to sustain such operations (Evans, 2010; Stanovich et al., 2014). When these cognitive resources are lacking - as is often the case in unfamiliar or stressful situations – emotional dysregulation tends to follow. It would thus be more appropriate to suggest that a lack of sustained coordination between analytic and experiential processes can result in emotional dysregulation, rather than experiential processing being the *de facto* source of behavioral disinhibition.

The second conceptual concern related to the results of this study is that habitual or dispositional tendencies towards the use of maladaptive coping strategies are not a direct indication of experiential cognitive processing. Rather, they are a consequence of the breakdown in cognitive decoupling that often occurs in unfamiliar or high stress situations. The results of this study support such an interpretation. The maladaptive coping strategies of emotional cutoff, emotional reactivity, and ruminative introspection are best understood in terms of their direct relationship to high stress environmental conditions and challenging personal or interpersonal circumstances. High scores across these variables thus provide a descriptive account of a client's cognitive resource capacity under a given set of personal circumstances rather than serving as a globalized or otherwise general explanatory account of their cognitive processing capabilities.

Put another way, a tendency to rely on maladaptive coping strategies in daily life does not indicate a deficit in cognitive potential. Experiential cognitions are neither inherently problematic nor indicative of an underlying processing issue. High scores on the experiential variables in this study therefore serve to describe behavioral tendencies under stressful conditions rather than to explain presenting concerns as a consequence of biases towards experiential processing. This distinction is important so as to ensure that clients are not negatively conceptualized or described as "experiential processors." As previously noted, dual process theories are clinically atheoretical and should not be used to explain why presenting concerns exist. Any such clinical explanations should be derived from the psychological constructs of attachment, empathy, or introspection rather than dual process theories.

Beyond these concerns, the current study suggests that the orientation model can provide a unique foundation for conceptualizing client concerns in the therapeutic process. Until further studies are conducted, however, several conceptual adjustments must be made to any interpretation of clinical results. First, the results of this study suggest that analytic cognition, cognitive empathy, emotional empathy, and reflective introspection may align under the latent measure of positive self-regard related to adaptability or perceptiveness, whereas emotional cutoff, emotional reactivity, and ruminative introspection correspond with emotional vulnerability or sensitivity. Second, analytic cognition appears to be a separate indicator of latent self-awareness or unconscious insight, and statistically unrelated to the other variables. Third, until the measures in the orientation model have been standardized and appropriate cutoff scores applied based upon more generalizable research studies, any use of categorical levels of intensity (e.g., low, medium, or high scores) for interpreting client dispositional tendencies would be utterly arbitrary.

At the same time, each individual set of measures can still be effectively used to determine the dispositional tendencies of clients in those respective psychological domains without reference to the overarching tenets of the orientation model. Since the conceptual framework established by the orientation model does not require any allegiance to a dual processing framework for interpretation, the measures can be still used independently to conceptualize client presenting concerns. The same premise applies to supervisors or counselor educators interested in determining the growth trajectory of supervisees or counselor-in-training. Despite the need for continued research

to validate the conceptual framework of the orientation model, its empirically-validated measures provide a flexible and beneficial tool for clinical and supervisory practices.

Limitations

There were several important limitations in this study. The participants represent a convenience sample that considerably limits the generalizability of study results beyond college students at a medium-sized, Midwestern research university. This limitation is further enhanced by the more particular selection of university participants, all of whom were first-time undergraduate freshmen in a selected freshman seminar course. In terms of self-knowledge and general developmental concerns, this population may be limited in terms of the insight and awareness needed to accurately identify their own dispositional tendencies. The accuracy with which they perceive their own tendencies might also be limited by their relative lack of life experience when compared to older and more experienced populations. Participants were also taken from a general student population that was not assessed in terms of a personal mental health history, which might have resulted in a greater tendency to self-score towards the mean. A similar concern stems from the potential role of social desirability bias, as having participants complete the assessment during a college class may have resulted in a misrepresentation of their actual self-perceptions. Finally, results from participants enrolled at a specific Midwestern university further limits the generalizability of the study.

A second limitation is related to the selection of instruments. In order to maximize the likelihood of participation, short-forms for each instrument were used to reduce the total number of items required to complete the survey. While this decision reduced the total number of items used in the survey nearly fourfold, it may have significantly

impacted the robustness of subsequent results. In turn, the internal reliability estimates for each of the measures were significantly lower than those produced by the long-forms. Whereas all of the subscales derived from the long-forms have been shown to result in Cronbach's alpha scores ranging from good to excellent in the existing literature, the short-forms used in this study ranged only from questionable to good. The Faith in Intuition subscale – for which results across all analyses in this study were insignificant – had the lowest reliability score among the sub-measures ($\alpha = .672$). While an analysis of study results seems to suggest that this lack of statistical significance was likely a result of construct validity issues, the possibility that its long-form version might have produced alternative results cannot be discounted.

A third limitation in this study was the absence of a baseline measure to gauge participant mental health. The lack of an evidence-based mental health assessment to determine the relationship between orientation model scores and general mental health concerns inhibits the generalizability of study results to clinical populations. The study provides no clear indication as to whether mental health status could influence the significance of findings among the orientation model variables. However, this particular limitation does not necessarily apply in terms of using the study findings to extrapolate to, presumably, more normative populations such as clinical supervisees or counselors-in-training.

The results might therefore be considered generalizable to active student populations rather than to the population at large, and thus of use in counselor training. However, readers should remain cautious about extrapolating these findings beyond a college freshman population in a selected area of the United States. As an initial step

towards developing a research protocol for investigating analytic and experiential dual-processing tendencies based on the premises of the orientation model, the current study was designed to ascertain whether or not the hypothesized relationships among model variables would hold up to scrutiny. In this respect, future studies should extend upon the preliminary foundation established herein by conducting research with both different groups of participants and different combinations of model variables.

Future Research

There are several directions in which future research could expand upon this study and refine its limitations. First, future studies should be conducted with alternative clinical and non-clinical populations. Since the orientation model is primarily designed as a clinical tool for the assessment of mental health outcomes and case conceptualization purposes, working with participants in mental health settings would be of substantial value. While this could certainly include the use of mental health assessment tools such as the General Health Questionnaire (GHQ; Goldberg, 1978), studies could also be designed to investigate the role of dual-processing tendencies among specific clinical populations or within the bounds of certain psychological diagnoses. It would be particularly interesting to combine the two, such as in comparing the role of dual-processing tendencies among inpatient and outpatient populations for generalized anxiety disorders. A similar course of study would be beneficial related to populations with differing age ranges, socio-economic statuses, and educational backgrounds.

Secondly, future research might adjust the instruments used to analyze dual-processing tendencies in the orientation model. For example, studies could include the full forms for each instrument rather than the short-forms used in the current study. While

this would substantially increase the time required for participants to complete the survey, the results would likely yield a more refined set of data. Internal consistency estimates for each of the long-forms reflect a substantially higher level of reliability which could, in turn, produce a richer data set for analysis. Either finding a new measure to replace the Faith in Intuition subscale or developing a new measure of experiential cognition altogether could be of value. However, the researcher would not necessarily deem the development of a new measure necessary unless further studies conclude that the long-form of the Faith in Intuition subscale is also statistically unrelated to the experiential variables in the orientation model.

A third direction could stem from a new set of research hypotheses regarding the role of low analytic cognition scores in determining experiential dual-processing tendencies. While this would require a new approach to interpreting the orientation model, it would align with the proposition set forth by some dual process theorists that experiential cognitions are not directly measurable (Evans, 2010; Stanovich, 2011). Instead, standardizing the scores among the analytic variable set and determining cutoff scores from research conducted across more generalizable populations could result in a streamlined version of the orientation model that still upholds its conceptual foundation. Furthermore, measures of varying mental health constructs that correlate with the Need for Cognition subscale could be incorporated into the orientation model itself and thereby expand its practical use for case conceptualization purposes. Such a process would require a considerable overhaul of the structure and design within the orientation model but might lead to a further enriching of the model as a result.

A fourth direction for future studies could involve analyzing the model variables in different combinations or with the inclusion of new or additional subscales. For example, the Differentiation of Self Inventory-Revised (DSI-R; Skowron & Schmitt, 2003) is actually composed of four subscales: Emotional Cutoff, Emotional Reactivity, Fusion with Others, and I-Position. Considering the negative valence of attachment scores as found in this study, it would be interesting to examine whether the positive language used for the I-Position items - such as “I tend to remain calm even under stress” - would correlate more heavily with analytic cognition scores than did emotional cutoff. Including a second set of measures related to introspective tendencies could also be of value, as the literature on self-consciousness discusses the value of distinguishing between particular four types of self-focused attention: reflection, rumination, insight, and internal state awareness (Grant, Franklin, & Langford, 2002). Finally, including the complete four factor scales for the REI, DSI-R, and IRI would likely provide considerably more robust results for analysis.

Conclusion

This study was designed to validate the conceptual tenets of the orientation model as a strength-based conceptualization framework for humanistic counseling practices. Designed using dual-process theories as its theoretical basis and humanistic-existential tenets for its conceptual foundation, the model is intended to provide counselors with a flexible assessment tool that addresses important client attributes within a dispositional model of client cognitive processing patterns. Using empirically-validated measures related to the constructs of cognitive processing, attachment, empathy, and introspection,

the orientation model proposes that counselors can effectively supplement their clinical observations and judgments with atheoretical measures of client dispositional tendencies.

While the current study failed to provide a complete validation of the orientation model, the results did lend support to certain aspects of its conceptual structure. The Faith in Intuition subscale proved to be a poor measure of experiential cognition and its replacement with an alternative measure or newly designed measure may be necessary. Offsetting these results, the Need for Cognition subscale was a significant predictor of nearly all variables in the orientation model and its descriptive value led to a potential reorganization of the orientation model for future studies. The hypothesized relationship of each variable to optimal mental health functioning was validated, as was the relationship between analytic cognition and the use of healthy coping strategies.

Overall, results of the current study suggest that the orientation model provides a descriptive framework for distinguishing self-perceived adaptiveness or perceptiveness from emotional vulnerability or sensitivity. Rather than providing an explanatory foundation tied to dual process theories, any clinical use of the orientation model may benefit from avoiding theoretical generalizations related to dual processing altogether. Reliance solely upon the psychological constructs to inform clinical judgments or case conceptualization practices may thus be warranted at this time. This interpretation was examined in relation to the dual-processing literature, its practical implications for use in both clinical and supervisory settings was discussed, and directions for future research and theory generation were suggested.

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APPENDIX A
PARTICIPANT CONSENT FORM

CONSENT FORM FOR HUMAN PARTICIPATION IN RESEARCH

UNIVERSITY OF NORTHERN COLORADO

Project Title: The Orientation Model Survey

Researcher: Brett Wilkinson, M.A., Counselor Education & Supervision

Research Advisor: Heather Helm, Ph.D., Counselor Education & Supervision

Researcher Email: brett.wilkinson@unco.edu Advisor Email: heather.helm@unco.edu

You are invited to participate in a research project entitled “The Orientation Model Survey”, designed to assess individual patterns of information processing related to the areas of cognition, relationships, empathic awareness, and introspection. This study is being conducted by Brett Wilkinson, a doctoral student in the Counselor Education and Supervision Department at the University of Northern Colorado, under the supervision of Dr. Heather Helm.

This study includes four questionnaires asking you to identify how you typically think, feel, and respond in a variety of situations. It should take approximately 5 to 10 minutes to complete. Your replies will be confidential and you may stop participating at any time. There are no foreseeable risks associated with participation in this study, and you must be 18 years or older to participate. While there are no immediate benefits of participation, you may gain some insight and self-awareness as a result of considering survey items. Participants will be entered into a drawing to win one of two \$50.00 Amazon.com gift cards. The winners will be selected using a random number generator, and contacted to collect the prize via email.

Data collected and analyzed for this study will be kept on the UNC campus in a locked file cabinet and locked office. No one other than the researcher will have access to this material. We will assign a subject number to you. Only the primary researcher will know the name connected with a subject number and when data is reported, your name will not be used. Identifiable data will be destroyed three years following the end of data collection.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please click “Start” below if you would like to participate in this research and you are 18 years of age or older. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

APPENDIX B**RATIONAL-EXPERIENTIAL INVENTORY (REI)**

Rational Experiential Inventory (REI)

(Epstein, Pacini, Denes-Raj, & Heier, 1996)

1-----2-----3-----4-----5
 not very true of me very true of me

1. I don't like to have to do a lot of thinking.
2. I try to avoid situations that require thinking in depth about something.
3. I prefer to challenge my thinking abilities rather than do things that require little thought.
4. I prefer complex problems to simple problems.
5. Thinking hard and for a long time about something gives me little satisfaction.
6. I trust my initial feelings about people.
7. I believe in trusting my hunches.
8. My initial impressions of people are almost always right.
9. When it comes to trusting people, I can usually rely on my gut feelings.
10. I can usually feel when a person is right or wrong, even if I can't explain how I know.

APPENDIX C

DIFFERENTIATION OF SELF INVENTORY – SHORT FORM (DSI-SF)

Differentiation of Self Inventory - Short Form (DSI-SF)

(Drake, Murdock, Marszalek, & Barber, 2015)

1-----2-----3-----4-----5
not very true of me very true of me

1. I tend to distance myself when people get too close to me.
2. At times my feelings get the best of me and I have trouble thinking clearly.
3. I'm often uncomfortable when people get too close to me.
4. At times, I feel as if I'm riding an emotional roller coaster.
5. I'm overly sensitive to criticism.
6. If I have had an argument with my spouse or partner, I tend to think about it all day.
7. When one of my relationships becomes very intense, I feel the urge to run away.
8. If someone is upset with me, I can't seem to let it go easily.
9. I'm very sensitive to being hurt by others.

APPENDIX D
INTERPERSONAL REACTIVITY INDEX (IRI)

Interpersonal Reactivity Index (IRI)

(Davis, 1980)

1-----2-----3-----4-----5
 doesn't describe me well describes me very well

1. I often have tender, concerned feelings for people less fortunate than me.
2. I sometimes find it difficult to see things from the "other guy's" point of view.
3. Sometimes I don't feel very sorry for other people when they are having problems.
4. I try to look at everybody's side of a disagreement before I make a decision.
5. When I see someone being taken advantage of, I feel kind of protective towards them.
6. I sometimes try to understand my friends better by imagining how things look from their perspective.
7. Other people's misfortunes do not usually disturb me a great deal.
8. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.
9. When I see someone being treated unfairly, I often don't feel very much pity for them.
10. I am often quite touched by things that I see happen.
11. I believe that there are two sides to every question and try to look at them both.
12. I would describe myself as a pretty soft-hearted person.
13. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.
14. Before criticizing somebody, I try to imagine how I would feel if I were in their place

APPENDIX E**REFLECTION AND RUMINATION QUESTIONNAIRE (RRQ)**

Reflection and Rumination Questionnaire (RRQ)

(Trapnell & Campbell, 1999)

1-----2-----3-----4-----5
strongly disagree strongly agree

1. My attention is often focused on aspects of myself I wish I'd stop thinking about
2. Sometimes it is hard for me to shut off thoughts about myself
3. I always seem to be rehashing in my mind things I've said or done
4. I don't waste time re-thinking things that are over and done with (RS)
5. I never ruminate or dwell on myself for very long (RS)
6. I spend a great deal of time thinking back over embarrassing or disappointing moments
7. I often reflect on episodes in my life that I should no longer concern myself with
8. People often say I'm a "deep", introspective person
9. I'm very self-inquisitive by nature
10. I'm not really a meditative type of person (RS)
11. I love analyzing why I do things
12. Contemplating myself isn't my idea of fun (RS)
13. I love to meditate on the nature and meaning of things
14. I often love to look at my life in philosophical ways

APPENDIX F

RESEARCHER-DEVELOPED DEMOGRAPHICS QUESTIONNAIRE

Researcher-Developed Demographics Questionnaire

Please specify your age:

- ☐ under 18
- ☐ 18-19
- ☐ 20-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46-55
- ☐ 55 or over

Please specify your gender.

- ☐ Male
- ☐ Female

Please specify your race.

- ☐ White
- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ Asian or Pacific Islander
- ☐ American Indian or Alaska Native
- ☐ Other

APPENDIX G
RESEARCH OPPORTUNITY ANNOUNCEMENT

Formal Announcement of Research Opportunity to First-Year Seminar Students

To All First-Year Seminar Students,

You're invited to participate in a brief research survey on information processing styles. It involves answering 49 questions and takes about 5-10 minutes. Your responses are confidential and you must be 18 years or older. Participation is completely voluntary.

Participants can choose to enter a prize drawing for one of two \$50.00 Amazon.com gift cards for completing the entire survey. If you are interested and over the age of 18, please click the link below:

[SPACE TO INSERT QUALTRICS LINK]

Thank you,

Brett D Wilkinson

APPENDIX H
FOLLOW-UP ANNOUNCEMENT

Follow-up Announcement of Research Opportunity to First-Year Seminar Students

To All First-Year Seminar Students,

This is a follow-up email to remind students about the following survey opportunity:

You're invited to participate in a brief research survey on information processing styles. It involves answering 50 questions and takes about 5-10 minutes. Your responses are confidential and you must be 18 years or older. Participation is completely voluntary.

Participants can choose to enter a prize drawing for one of two \$50.00 Amazon.com gift cards for completing the entire survey. If you are interested and over the age of 18, please click the link below:

[SPACE TO INSERT QUALTRICS LINK]

Thank you,

Brett D Wilkinson

APPENDIX I
INSTITUTIONAL REVIEW BOARD APPROVAL (IRB)



Institutional Review Board

DATE: November 3, 2015

TO: Brett Wilkinson, MA

FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [417697-2] The Orientation Survey

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS

DECISION DATE: November 2, 2015

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

Thanks for a clear resubmit. I wanted to note for IRBs record you said 100\$ at one place in the narrative, but I know you meant 50 and should correct.

Best Wishes,

Maria

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.