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VIEWING SELF-CONCEPT: THE SOCIAL/NONSOCIAL, PSYCHODYNAMIC, AND COGNITIVE PROBLEM-SOLVING MODEL RELATIONSHIPS TO OUTSTANDING CREATIVE AND INNOVATIVE PERFORMANCE

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Judy Rouse Van Doorn
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THE SOCIAL/NONSOCIAL, PSYCHODYNAMIC, AND COGNITIVE PROBLEM-SOLVING MODEL RELATIONSHIPS TO OUTSTANDING CREATIVE AND INNOVATIVE PERFORMANCE

A Dissertation APPROVED FOR THE
DEPARTMENT OF PSYCHOLOGY

BY

_____
Dr. Michael D. Mumford

_____
Dr. Jorge L. Mendoza

_____
Dr. Kirby Gilliland

_____
Dr. Shane M. Connelly

_____
Dr. Aimee L. Franklin

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ABSTRACT

Self-concept, considered prioritized goal hierarchies, that creative individuals embrace is considered a primary motivator leading to their eminent, creative achievement and notable, novel performance. The dynamic formation of self-concept is a cognitively, organized knowledge structure that can acquire, process, and evaluate personal characteristics, life events, traits, and values. Few studies have comprehensively examined self-concept profiles based on social and nonsocial traits, psychodynamic, and cognitive problem-solving theoretical models and respective relationships with creative and innovative performance. In this study, 103 university students completed a self-concept measure indicating past/present and future profiles with selected life events subsumed under self-described categories. Then, students completed three novel problems described as entrepreneurial, consulting with planning, and marketing with advertising exercises to assess creative ability. Subjects with self-concept views that aligned with nonsocial traits suggesting introversion, cognitive focus, and the psychodynamic influences of negative emotion, originality, and detail-orientation performed consistently higher on the creative business exercises. In addition, significant self-concept combinations across all three models indicated particular strengths in creative and innovative performance. The implications of these findings for assessing and understanding self-concept profiles associated with outstanding creative and innovative performance as well as potential are examined.

Viewing Self-concept:

The Social/Nonsocial, Psychodynamic, Cognitive Problem-solving Model Relationships to outstanding creative and innovative performance

Self-concept, considered prioritized goal hierarchies, that creative individuals embrace is considered a primary motivator leading to their eminent, creative achievement and notable, novel performance. Self-concept drives creators to focus their attention selectively among the multitudes of sensory and emotive stimuli and to allocate their time accordingly in order to create. The self as a psychological construct has been the subject of debates among philosophers, scholars, and scientists. Plato theorized that when a soul inhabits the body, it operates on three levels of reason/thought, spirit/will, and appetite/desire; thereby, a person's stability and goodness will depend on the harmony between all three. William James (1890) crystallized the concept of selfhood, the "common sense of mankind," as a distinct principle and empirical construct consisting of the material self, social self, and the spiritual self. Recently, Csikszentmihalyi (1993) defines the self as the "brain's awareness of its own form of organizing information." Therefore, self-concepts are formed and viewed as dynamic, organized cognitive schema that are contextually dependent and capable of delineating between contents and structure. Thus, the self-concept knowledge structure influences the acquisition, organization, and information processing of personal characteristics, values, traits, life events, and evaluates self-relevant information (Mobbs & Connelly, 2000; Showers, Abramson, Hogan, 1998). The present study will review the conceptual structural organization of self-concept indicating the social-environmental and cognitive influences

upon self-concept. These self-concept aspects will be viewed in respect to the implications that they have on creativity.

Self-concept

Most research on self-concept has been conducted from a clinical focus on identity formation (Erickson, 1968), academic self-concept, social self-concept, global self-concept, and physical self-concept (Byrne, 1984; Marsh, 1990; Shavelson & Bolus, 1982). Specifically, these studies only looked at individual perspectives of self-concept versus more encompassing views. Recently, delineation has been made concerning the structural organization of self-concept being based on the content and structure of self-knowledge. According to Kernis and Goldman (2003), the multifaceted self-concept has both core, stable conceptions called core self-concepts and others that are more contextually-based, and malleable defined as working self-concepts. Self concept is constructed of knowledge structures in need of some form of organization that will be available to retrieve information as needed. The working self-concept consists of the subsets of beliefs that are retrieved and brought forward during contextual processing (Cantor, Markus, Niedenthal, & Nurius, 1986; Markus & Nurius, 1986). In addition, organizational functions of the self-concept can adjust the accessibility of knowledge items, thereby limiting the impact of negative self-beliefs (Showers and Zeigler-Hill, 2003; Showers, 2000; Showers, 1992a, 1992b, 1995). The features included in self-knowledge content areas may include life domains such as family, friends, religion, community, school, work, health, relationships, and other domains of concern and interest. These are areas of relevance to a person that indicate their ability to interact with others and within the constraints of the environment. It's a world-view to a person

developed after experiences and interactions. Categories of self-knowledge will be unique to the individual with items of importance pertaining to present times in their lives as well as hopeful future expectations. These categories represent a distinct self that results in multiple selves across the category spectrum (Markus & Wurf, 1987; Showers & Zeigler-Hill, 2003). Young adults may prefer to emphasize academics and friends; whereas, older adults may have content areas emphasizing family and health related issues. Overall, content dimensions of self-concept may display patterns that appear to have more positive versus negative valences, more "others orientation" or social interdependence, more responsibility, planning, and proactive themes, or even unusual or atypical themes.

With the structural components of self-concept in mind, recent research has refocused attention on the social-cognitive aspects of self-concept viewing self-concept as knowledge structures containing values, traits, and memories that guide self-relevant information processing (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996; Kihlstrom & Cantor, 1984; Linville, 1985, 1987; Markus, 1977; Showers, Abramson, & Hogan, 1998). The self is examined as an unmotivated, "cool" knowledge structure comprising declarative and procedural knowledge (Linville and Carlston, 1994). Recently, Leary and Tangney (2003) propose a self that is involved in three psychological processes including cognition, attention, and regulation. Of these three processes the ability for self-relevant thought in cognition is the basis for the construction and organization of one's self-concept and identity, as well as standards that are able to guide people's actions and emotional influences such as what one should do or be (Higgins, 1987). The third component of self involves the executive function or

regulation process that gives a person the ability to have self-control. This regulation process forms a self that is active and responsive by intentionally engaging in volitional processes to alter, change, and modify self in order to gain a better fit between self and the environment (Baumeister and Vohs, 2003). The importance of the executive process is viewed as self-regulating one's ability to resist temptations in order to persist with effort at tasks and, thereby, carefully weigh the best options in order to reach goals. Another very important point that Leary and Tangney (2003, p. 10) allude to is that the self is not essential for emotion or motivation as it is for attention, thought, and regulation, but that the self does underlie some of the motivational and emotional phenomena. These researchers note the more inclusive roles and influences of the social, environmental as well as emotional aspects of the self in regulating one's actions.

Research involving primary, affective cognitive processes include that of Linville (1985,1987) who developed and tested a model of self-complexity based on the hypothesis that a person holding a less complex, cognitive representation of the self will show more variance in affect and self-appraisal. Self-complexity involves representing the self in a greater number of cognitive categories or self-aspects as well as maintaining clear distinctions between the categories. Results indicated subjects with lower self-complexity did have more variance in affect due to stressful life events and were prone to depression and illness (Linville, 1985, 1987). In addition, compartmentalization and integration (Showers, 1992a, 2000; Showers, Abramson, & Hogan, 1998; Showers & Zeigler-Hill, 2003) included a focus on the structure of the positive and negative beliefs into separate distinct categories within self-knowledge. For example, a student might consider and evaluate their academic, achiever-self as possessing all positive item

valences such as creative, energetic, analytical, motivated, and intelligent. On the other hand, an integrative organizational structure includes both positive and negative items of valence. For example, another student might consider their academic self as insecure, curious, tense, and analytical. Showers (2002) proposed a dynamic model indicating how the self-structure may change between compartmentalization, integration, and recompartmentalization with corresponding variations in negative and positive moods and residual higher or lower self-esteem in response to stressful life events. Another theory includes self-discrepancy theory (Higgins, 1987, 1989). The self-knowledge structure involves the significance of affect patterns between the self-concept and the ideal and ought self-guides and resulting stability between these self structures (Strauman, 1996; Higgins, 1989, 1987). The ideal and ought self are guides that elicit significant standards for self-evaluation and if a discrepancy exists between them, a negative affective state will result. Higgins (1989) postulated that either a "world view" of positive outcomes or negative outcomes is taken on by a child during development with caretakers who emphasize either an ideal or ought domain of self, respectively. These studies emphasize the primary cognitive influences upon self-concept and reciprocal affective associations.

In addition to affective cognitive states influenced by the structure of self-concept, research has focused on the aspect of clearer, more organized self-knowledge structures labeled self-concept clarity and importance differentiation. Self-concept clarity is defined as clear, stable, internally consistent self-beliefs reported with confidence by individuals (Baumgardner, 1990; Campbell 1990; Campbell, Trapnell, Heine, Katz Lavallee, & Lehman, 1996). Individuals with high self-clarity are certain about their self-

knowledges, and consequently, have higher self-esteem. On the other hand, low self-clarity has been associated with low self-esteem, low agreeableness, neuroticism, and rumination (Showers & Zeigler-Hill, 2003). Individuals with high self-clarity possess more organized self-concepts; whereas, those with low self-clarity reflect disorganized structures that can result in poorer decision making (Setterland & Niedenthal, 1993). In addition, the structure of self-knowledge also can be distinguished by an importance differentiation. Individuals who are adept at placing importance weights on different self-knowledges are better able to organize and frame their self-concepts; thus, resulting in higher self-esteem (Pelham & Swann, 1989). Pelham and Swann, (1989) developed the Self-Attributes Questionnaire (SAQ) that measures a person's self-evaluations across a universal set of life domains based on importance ratings. The importance differentiation (DI) correlated with higher self-esteem in adults.

In review, the self-concept construct can be described as a dynamic organization of a person's knowledge structure consisting of both content and structural knowledge features. Content specifies the self-knowledge of data and factual components; whereas, the structure of self-knowledge can be of many forms such as complexity, compartmentalized and/or integrated, clear and internally consistent displaying self-clarity, differentiated by importance, and possibly discrepant between ideal and ought self-views. Collectively, the self-concept literature is built around an emphasis on three areas of importance including the cognitive processes, structural make-up, and social environmental influences made upon one's self-concept. The intent of this present study is to specifically bring these three areas of research focus on self-concept together by examining the different relations that self-concept elements have on creativity. Three

theoretically-based models including a social/nonsocial, psychodynamic, and cognitive problem-solving perspective will be examined in order to distinguish corresponding performance quality and originality on three creative tasks.

The models used in this study provide structural patterns or profiles that help to delineate and assess self-concept relations to creativity. Foremost, there are different perspectives on what constitutes creativity including the distinction of the creative product such as Picasso's *Les Demoiselles d'Avignon* masterpiece where the art signified a radical break between it and reality or scientific inventions where discovery is built upon existing phenomenon such as Einstein's theory of relativity. A general consensus has emerged in the field to the definition of creativity as the ability to produce work that is both novel and appropriate or socially valued (Lubart, 1994; Mumford & Gustafson, 1988; Oschse, 1990; Sternberg, 1988a; Sternberg & Lubart, 1991, 1995, 1996, 1999). Self-concept elements as viewed through three different models will help to distinguish related performance on three different creativity tasks. The initial model of social/non-social refers to normative social influences on behavior (Feist, 1999; Gardner, 1983, 1993; Cox & Leon, 1999). The second model involves unconscious, nonsocially-controlled processes as well as uncontrolled affective cognitive processes (Eysenck, 1995; Simonton, 1984d, 1988c, 1992b, 1994b, 1999; Weisberg, 1993; Martindale, 1990, 1999; Martindate & Dailey, 1996; Martindale & Hines, 1975). The final model refers to the use and involvement of expertise, knowledge structures and mental processes as well as heuristics to define and solve ill-defined problems (Baughman & Mumford, 1995; Eysenck, 1995; Ericsson, 1996; Finke, Ward, & Smith, 1992; Holyoak & Thagard, 1995; Ward, Smith, & Finke, 1999; DeGroot, 1966; Weisberg, 1993).

Before the models are explained in detail, clarification and distinct differences need to be made between self-concept and the self-terms of self-esteem and self-efficacy (Leary & Tangney, 2003; Mischel & Morf, 2003, Mobbs & Connelly, 2000). Foremost, self-esteem has received attention as a motivating entity in the structure of self. While current theory emphasizes the self-concept as a cognitive structure that organizes memories and controls and processes information that is self-relevant (e.g. Showers, Abramson, & Hogan, 1998; Kihlstrom & Cantor, 1983, Markus, 1980), the self-esteem construct is recognized as an evaluative component playing a critical role in the structure of self-concept and its reaction to the environment (Rogers, 1981; Tesser & Campbell, 1983). Campbell (1990) conceptualized that the evaluative component of self is an inner, trait self-esteem; thereby, a global self-reflexive attitude about one's feelings of self-worth. Furthermore the term self-efficacy is clearly defined by Bandura (1997, p.3) as the ability to "organize and execute the courses of action required to produce given attainments." Maddux and Gosselin (2003, p. 220) state that "self-efficacy is an evaluation of how well one can mobilize one's resources to accomplish goals." It is not an outcome expectancy, or intention, or a belief in what will be done, but it is a belief in what they can do, especially in challenging situations. Thus, self-concept defined by its encompassing, organizing functions of self-knowledge structures stands to subsume these two concepts of self-esteem and self-efficacy. Specifically, the efforts in this study will be to examine the self-concept construct in terms of its relationships with creativity.

Social/Nonsocial Model

This model refers to the normative social influences on creative behavior that has been addressed in studies of creative artists and scientists (Feist, 1999), eminent creative

individuals (Gardner, 1983, 1993; Csikszentmihalyi, 1990, 1993, 1996), and on schizotypal traits and creativity (Cox & Leon, 1999). Feist (1999) was able to find evidence of covariation on individual differences in the creative personality. Creative artists display certain social and non-social traits peculiar to their creative profile. Specifically, the nonsocial traits found to describe creative artists included openness to experience, fantasy-oriented, imagination, impulsivity, lack of conscientiousness, anxiety, affective illness, emotional sensitivity, drive and ambition. The social traits describing the creative artist include norm doubting, nonconformity, independence, hostility, aloofness, unfriendliness, and lack of warmth. In addition, the personality findings for the more creative scientists included the nonsocial traits of openness to experience, flexibility of thought, drive, ambition, and achievement. The social traits of the more creative scientist included dominance, arrogance, hostility, self-confidence, autonomy, introversion, and independence. Comparisons suggested that artists are more affective, emotionally unstable, unconventional, and less socialized; whereas, scientists were more conscientious.

Feist's (1999) research supports work by Carl Rogers (1954) that suggested creative environments have a set of conditions that help to foster individual creativity. First of all, individuals predisposed to high creativity are open to experience, have an internal locus of evaluation, and an ability to manipulate conceptual ideas and components. Also, he posited that external conditions can help to nurture these internal conditions including social environments that accept the person as having unconditional worth, thus, enhancing one's psychological safety. Finally, the authority figure or caretaker understands the importance of psychological freedom that allows unrestrained

expression and therefore encourages any ideas and connections no matter how impractical or unconventional as long as no psychic harm results.

Social and nonsocial personality traits unique to the creative individual supports the regulation process of an actively, engaged self-concept that modifies the self in order to gain better social and environmental fits (Baumeister & Vohs, 2003). In addition, the development of a self-concept world-view only comes through social experiences and interactions (Markus & Wurf, 1987; Showers & Zeigler-Hill, 2003). Thus, the following propositions and expectations are hypothesized between creative types and their subsequent self-concept knowledge. Creative types show more concern for work, take on more responsibility and conscientiousness, have less involvement with others or show interdependence, are more achievement-oriented and are nonconformists, thereby, more socially atypical. The self-concept expectations include a focus on work-related issues versus family concerns as well as a concern for being responsible on most matters. Also, the self-concept holds fewer concerns for interpersonal reactions suggesting independence, a more competitive self-concept with a focus on achievement items, and a self-concept that focuses on being nonconventional, not subject to social boundaries, suggesting both atypical present and future items, respectively.

According to Gardner (1983, 1993) based on his case study analysis on seven creative lives of Freud, Einstein, Picasso, Eliot, Graham, and Gandhi, he presents a thoroughly structured argument for the interactive influences among domains, individuals, and fields. Specifically, the interactions on a person's creative potential and ability involves his/her personal knowledge level in a domain or discipline developed from cognitive, personality and motivational issues, social-psychological issues and life

patterns experienced. These experiences include social influences of childhood family and peer support while developing individual talent as well as that of field supporters, judges, rivals, and institutions during the mature years of creation. Also, the influence of the actual discipline and domain consisting of symbolic systems, activity levels, and paradigm status will influence creative ability. Furthermore, it has been found that creative individuals will use relationships for their own creative purposes, thereby, having difficulty with deep emotional relationships (Gardner, 1983, 1993).

Additional support describing the interactional dynamics encompassing creativity includes research by Csikszentmihalyi (1996) on 91 eminent creative individuals. He defines creativity as a result from the interaction of a surrounding system composed of a culture or domain with symbolic rules that must be learned, an individual that brings novelty and change to a symbolic domain, and domain/field experts that have the ability to recognize and validate the innovation. Building upon Maslow's theory of hierarchical self-actualization, Csikszentmihalyi (1993) suggests a transcendent self that forms through individual complexity and a harmonious evolution of integration. The transcendent self is one that moves the self beyond personal actualization into a self that pushes the limits of societal and environmental boundaries. The transcendent self, as found in Mother Teresa, embraces goals that integrate their individual uniqueness with larger goals, such as humanity, family welfare, and community. The theory of optimal experience is based on the concept of flow that indicates a personal state of very focused and involved activity leading to higher performance and states of consciousness. Creative flow experiences transform and promote the organization of self into a more complex knowledge structure. Optimal flow experiences are best found to happen in

mental states of organized psychic negentropy where there is order in cognition, thereby, freeing up personal attention and control that can be directed toward the attainment of one's goals. Free attention span for creative thought and action is similar to the theoretical hierarchical structure of self (Rosenberg, 1988; Rosenberg & Gara, 1985) that suggests a complete set of working self-concepts that facilitates efficiency, satisficing, achieving closure, and prioritization. Whereas, during times of low stress, another hierarchical branch of working self-concepts may facilitate nurturance, exploration, attention to detail, and creativity (Showers & Zeigler-Hill, 2003).

Within the social/nonsocial model, the self-concept and creativity dynamic is strongly influenced by personality traits, environmental demands, and developmental influences (Simonton, 2000) that act upon individual creative potentiality. Creativity requires the exposure to both diverse experiences that break or weaken the social conventional standards opposed upon the individual as well as challenging experiences that help to strengthen an individual's ability to persevere in the face of adversities (Simonton, 1994). Additionally, the self-concept process that proposes self as including cognition, attention, and regulations (Leary & Tangney, 2003) supports this model suggesting that creativity is best found when attention is controlled, freeing up cognitive space to pursue high goals. Given these propositions, one might argue that superior creativity results mostly from worldly, experienced individuals with the tenacity to work hard in solitude even in the face of opposition. Thus, the following propositions and expectations between creativity and self-concept include creative types are persistent in curiosity about a limited range of things, have more internal versus external locus of control, show a wider range of life experiences, are performance-oriented, and seek

mental stimulation. The self-concept expectations would follow that the self would be described by limited and focused categories of self that are stable. Also, the self-concept would be described as a very proactive causal agent with higher quantities of life experiences and events listed suggesting a more expansive self-concept. Performance orientation would indicate a self-concept that is very goal-directed through attention to planning items. Finally, the desire for mental stimulation in creative acts suggests a self-concept that is comfortable with solitary activities such as seeking education and reading books versus seeking stimulation through group activities.

Relationships between creativity and schizotypal traits have been found in recent studies (Schuldberg,1990; Schuldberg, French, Stone, & Heberle, 1988; Cox & Leon, 1999). Results indicated significant relations between the positive schizotypal symptoms and creativity test scores measuring PerAb (perceptual distortion of one's own body and objects; Chapman, Chapman, & Raulin, 1978) and perceptual, personality-biographical features of creativity (Shculdberg et al., 1988). Cox and Leon (1999) expanded this study in order to measure negative schizotypal traits and their association to creativity. Findings suggested that Eysenck's (1992, 1994, 1995) psychoticism scale defined as (P) indicated a relationship between SocAhn (social withdrawal due to inability to enjoy social interactions; Eckbald & Chapman, 1983) and divergent thinking. Divergent thinking is defined as an ability to possess productive thinking skills including the components of fluency, flexibility, and originality that result in multiple solutions to a problem (Guilford, 1950, 1967, 1975). Cox and Leon (1999) found that SocAhn is definitely related to divergent thinking; whereas, the broad measure of (P) is associated with perceptual and personality creativity. Thus, creativity manifests a vulnerability to

psychosis for the individual (Becker, 2000-2001; Cox & Leon, 1999; Sass, 2000-2001). This finding gives us a final proposition between creativity and self-concept that indicates creative types will be less interpersonal, showing less affect or social anhedonia; thereby, self-concept would be described by fewer group-based categories and activities.

Thus, it is hypothesized that metatheoretical creativity comes out of personality and social environment and, thereby, results in motivation and willingness to engage in creative acts. See Table 1 for a complete listing of the social/nonsocial propositions and related self-concept expectations.

Insert Table 1 about here

Psychodynamic Model

The psychodynamic model describes creativity as resulting from unconscious, nonsocially-controlled processes as well as uncontrolled affective cognitive processes. According to Kris (1952) creative individuals are better able to shift between primary and secondary modes of cognition. Primary process cognition characterized by free associations and analogical images is found in normal states of dreaming and reverie as well as in the abnormal states of psychosis and hypnosis. Whereas, secondary cognitive processes are defined as logical, abstract thoughts of the waking consciousness characterized by reality-oriented thinking. Creative individuals report more fantasy activity (Lynn & Rhue, 1986) and remember dreams better (Hudson, 1975). Martindale and Dailey (1996) found potential creativity was related to the primary processing

content in subject's written fantasy stories. Further support for the unconscious process involved in creativity is found in evidence linking cognitive inhibitions and psychoticism (Eysenck, 1992, 1995) and supported through EEG testing on cortical arousal (Martindale, 1981, 1990, 1999; Martindale & Armstrong, 1974; Martindale & Dailey, 1996; Martindale & Hines, 1975; Martindale & Hasenfus, 1978; Martindale, Hines, Mitchell, & Covello, 1984). Creative individuals tend to use more primary processing abilities and findings suggest that when cortical arousal is induced (white noise), creativity will decrease (Martindale, 1989, 1990; Martindale & Greenough, 1973; Martindale & Dailey, 1996). Additionally, Eysenck (1990, 1995) found relationships between creative individuals and their cognitive inhibitions and resulting high scores on his P scale of psychoticism as well as their similarities with schizophrenics on remoteness of word association responses. The traits measured in Eysenck's psychotism scale include aggressive, cold, egocentric, creative, impulsive, antisocial, impersonal, tough-minded, and unempathic. Thus, it can be argued that personal deviant behavior that is not bound by conventional, social norms may elicit creativity.

Creative individuals can face mounting tension between their resistance to social conformity and the prevailing Zeitgeist at the time of their novel, creative contributions. Strong evidence suggests that the eminent individuals including Gandhi, Henry David Thoreau, Martin Luther King, Jr., Galileo, Socrates, Joan of Arc, and Jesus Christ spent time in jail due to their risk-taking behavior (Brower, 1999; Eisenman, 1997). Further support for these findings is found through historiometric analyses by Simonton (1984d, 1988c, 1992b, 1994b, 1996a, 1999) who has found that negative life events or traumas do effect one's motivation and determination to achieve or create more. Specifically,

generalizations have emerged that indicate that exceptional creativity doesn't always come from the most nurturant environments from findings on parental loss (Eisenstadt, 1978).

In addition, Simonton (1980a) developed a predictive, exploratory model of intuition stating that a person's behavioral adaptation to the environment is unconscious and probabilistic versus analytical, conscious processes. He posited that experience, learning, and conditioning form associations between ideas and events. Thus, conditional probability functions are produced and give rise to four thresholds of attention as nonconscious, behavior as infraconscious, cognition as symbolic representation, and habituation as ultraconscious. He suggests that creative individuals are able to generate more original combinations through their ability to have "looser" associative connections in thought versus habitual associations found in ordinary thinkers. Thus, creative individuals have more opportunities for "chance permutations" or remote associations (Mednick, 1962) producing more novel responses from their cognition that possesses many mental elements. Therefore, the following propositions and expectations can be made between creativity and self-concept suggesting that creative individuals are more open-minded, especially to new concepts. Creative types find delight in finding the bizarre of simple, mundane everyday life happenings and pay attention to details. The self-concept expectations would follow that the self will be described as having more open-ended content categories showing less tight boundaries in behavior as well as items that include the nuances of everyday life, respectively.

Based on the psychodynamic model involving unconscious processes and affect as well as associational, autistic processing activities, creative types are risk takers,

usually against the prevailing Zeitgeist of the time. Creative types are more deviant from social norms, possess more psychotic tendencies and can transition freely from primary to secondary process cognition. Therefore, the following propositions between creativity and self-concept include creative types as risk takers and deviant from the social norm. Creative types are rebellious with a need and desire for change, possibly showing creative altrusim. In addition they possess more neurotic, psychotic tendencies suggesting free associative, analogical, dream-like categories and items when describing their self-concepts. Perhaps an implication for self-concept theory suggests that neurotic tendencies come from less self-clarity (Baumgardner, 1990; Campbell, 1990; Campbell et al., 1996). Thus, self-concept expectations follow that the self would be described as having more atypical, aggressive, and bizarre items as well as having more associational, discordant self categories. Also, the self-concept structure would consist of more original and unusual categories of self. Creative types have more negative affect shown in regard to current life, but less to future life. Therefore, the self-concept would be described as having more listings including personal life events such as death, illness, and injury. Creative types have more negative life events that motivate their creative behaviors to do better in life and are more sensitive and tend to withdraw. Creative individuals would describe themselves by more solitary tendencies and individual versus group activities.

Furthermore, creative individuals often possess the high cortical arousal levels of introversion (Eysenck, 1990, 1995; Martindale & Armstrong, 1974). Eysenck (1992, 1994, 1995) proposes a causal theory of creativity deriving from relationships between genetic determinants, hippocampal formation of dopamine and serotonin, cognitive inhibition, and psychoticism that combine to lead to creativity traits. Creativity depends

on arousal levels such that high arousal indicates a narrow attention span and low arousal indicates a wider attention span. He posited that introverts have generally higher activity levels in their ascending reticular activating system (ARAS) and, therefore, are more highly aroused than extraverts during comparable levels of stimulation. Creativity depends on a wide attention span to the point of overinclusion, a psychotic characteristic (Eysenck, 1995; Isen, Daubman, & Nowicki, 1987; Jamison, 1993; Mendelson, 1976). The construct of psychoticism (P) is considered an underlying trait of creativity and affects creativity in a colinear fashion. Along a mental health continuum, overinclusion through a wide attention span can enhance creativity up to a certain point then subsequently lead to an episode of psychotic behavior. Thereby, creativity can be slowly minimized and rendered dysfunctional through the influences of (P) by disorganizing individual knowledge structures.

Martindale and Armstrong (1974) found that lower levels of arousal as measured by EEG testing were related to more creative problem solving ability. Interestingly, these studies found that low cortical arousal levels happen only during the inspiration and exploratory stages versus the elaboration stage of creativity, possibly due to increased focus and reflection needed during problem solving. Another study by Martindale and Hines (1975) measured EEG alpha-wave activity (inverse measure of cortical arousal) with creative and noncreative subjects taking both an Alternative Uses Test (pure measure of creativity) and a Remote Associates Test (measure of both creativity and intelligence). Results indicated that the high-creative subjects showed different levels of arousal versus none for the medium to low-creative subjects. Consistent with theory that creativity requires defocused attention produced by low levels of cortical arousal, the

high-creative group was less aroused while taking the pure creative measure, the Alternative Uses test. Martindale (1999) proposed that creative individuals possess characteristics of oversensitivity, habituation, need for novelty, and stimulation resulting from his biological research on creative individuals experiencing overly sensitive reactions to stimulation (Martindale, 1977) and skin responses to tones (Martindale, Anderson, Moore, & West, 1996).

Consequently, Martindale (1999) suggests that creative individuals can be at odds with their levels of arousal. A cycle is formed where they withdraw due to oversensitivity, verging on sensory deprivation, in order to lower their cortical arousal and to enhance their creative potential; then, they will again seek out intellectual stimulation and novelty to increase cortical arousal (Schultz, 1965). Creativity results mostly from flat associative structures of cognition; in addition, creative individuals tend to overinclude information resulting from a failure of inhibition such as that characteristic of psychotics, high-P scorers, schizophrenics, and geniuses. Evidence supports the unique characteristic of highly creative individuals having a lower resting cortical arousal state; thus, limiting the attentional focus placed on stimuli gives further support to the self-concept theory posited by Leary and Tangney (2003) suggesting the self composed of three psychological processes of cognition, attention, and regulation.

According to Weisberg (1993) emotional and affective sensitivity is a valued characteristic of the creative scientist or artist. Creative individuals hold broad interests, self-confidence, judgment independence, intuition, and a strong sense of self as creative. Consistent with the emotions found in primary thought processes, creative scientists who are open to new experiences and express their aesthetic feelings through desires to design

experiments that are simple, beautiful, and elegant; whereas, the sensitive artist desires to move others emotionally through their work. Building upon this view, John Gedo (1989a, 1996, 1997) posited the importance of emotions, primary-process thinking, and affective states involved in great creativity through his psychoanalytic research on historical artists including Vincent van Gogh, Pablo Picasso, and Paul Cezanne. Gedo (1972) suggested that the inherent self-esteem resulting from one's great accomplishments irresistibly pulls the creative person to exercise their gifts. In addition, Gedo (1997, 1993) suggests that self-esteem is not the only motivating factor and that creativity depends on the joy of effectance and on a preference for novelty. This new psychoanalytic perspective suggests that creativity is the ability to process percepts or abstractions as metaphors in uniquely flexible and sophisticated ways; and for instance, to transmit this creative message consisting of personal high ideals in the form of a perfected masterpiece (Gedo, 1989a). For example, van Gogh who unsuccessfully attempted a career as a minister found the best medium to express his religious passion and identification with Christ was through his artwork. In addition, Mary Cassatt's work such as *Modern Woman* pushed to break traditional role images for women of her time as well as keep the softness of femininity (Hutton, 1994). Ehrenzweig (1967, 1975) suggested that this capacity to manipulate percepts within a domain by the creative individual involves two modes of perception, the childhood gestalt-free mode and the gestalten mode, acquired later in development. This insight suggests that highly creative individuals possess a unique ability to switch between these two perceptual modes, apprehension of objects or problems as a whole (the gestalt mode) or as pieces of uncoordinated details (the gestalt-free mode). Therefore, creative talent in any domain

implies the preservation of the detailed, perceptual gestalt-free abilities of childhood in conjunction with gestalten. These studies strongly suggest that creative individuals are more imaginative and perceptual suggesting a self-concept that is descriptive and colorful in content including more reports of fantasies and a desire for novelty.

These affective tendencies of the more highly creative individual suggest several propositions. Creative types display more associational, affective cognitive systems. Additional support for the unconscious, nonsocially-controlled cognitive processes enhancing novel, creative ability is presented by Martindale (1990) in his theory of primordial states of mind described as unconscious, timeless and dreamlike. Primordial processes possess the ability to regress the artist during inspiration into a mental search, or "night journey," consisting of free-associative thought processes that lead to more unique and unusual combinations of ideas and images. Dailey, Martindale, and Borkum (1997) found further evidence of primary processing in highly creative individuals consisting of physiognomic perception (Werner, 1948), a primordial cognition that fuses emotion and perceptual systems in inanimate stimuli, and synethesia (Cytowic, 1989), a unity among the different sensory modalities. Findings indicated that more creative individuals exhibited significantly stronger affectual-perceptual responses between colors and pure tones, vowels, and emotional terms. An implication for self-concept theory suggests that highly creative individuals, due to their psychotic tendencies and affective displays, may have less self-complexity of knowledge structures (Linville, 1985, 1987).

The more associational, affective cognitive propositions of the highly creative individual have subsequent expectations as related to self-concept knowledge structures. The self-concept would be described in a more unorganized fashion with defocused

attention. Also, the creative self would be indicated as having a large number of emotionally laden self-concept categories. Highly creative individuals with tendencies to overreact would present their self-concepts by overstatements and excessive elaboration with a tendency to exaggerate. Considering the posited theory in this psychodynamic model, it is hypothesized that creativity can come from random associations made from affective associations, psychotic behavior, and sensitivity. Also, creativity and theoretical insights come from the ability to engage more readily in primary process cognition that is uncontrolled. See Table 2 for a complete listing of the psychodynamic propositions and related self-concept expectations.

Insert Table 2 about here

Cognitive Problem-solving Model

The cognitive approach to studying creativity includes assessing mental representations and underlying processes during creative thought. Creativity under this approach involves emphasis on the problem solving abilities of the individual (Boden, 1991; Perkins, 1981; Sternberg, 1985b, 1988a). Specifically, this model refers to the use and involvement of expertise, knowledge structures and mental processes, and heuristics to define and solve ill-defined problems (Baugman & Mumford, 1995; Degroot, 1966; Eysenck, 1995; Ericsson, 1996; Finke, Ward, & Smith, 1992; Holyoak & Thagard, 1995; Ward, Smith, & Finke, 1999; Weisberg, 1993). Mumford and Gustafson (1988) suggested that the use of the processes of integration and reorganization upon cognitive

structures most likely contribute to major creative contributions. This approach emphasizes a creative person's ability to solve problems through identification of the problem itself, solution possibilities, search for alternative solutions, evaluation of solutions for best fit, resource allocation through efficient means, determination of change of course, and, finally, self-reflection on the creative process.

From their review of the creativity literature, Mumford, Mobley, Uhlman, Reiter-Palmon, and Doares (1991) found that creative individuals use core creative-thinking processes. The core processes include defining the problem, identifying relevant knowledge structures, combining and reorganizing these knowledge structures in order to generate a new understanding, evaluating the new idea, and then taking action and trying it out. Furthermore, Baughman and Mumford, (1995) found that search, mapping, and elaboration processes seem to be required for original solutions, not necessarily high quality ones subject to the condition that retrieval from memory includes familiar items. Thus, the operation of combination and reorganization processes is enhanced by the activation of feature search and subsequent mapping processes, leading to higher exemplar originality.

With the proposed theory of the creative individual possessing better problem solving features in their knowledge structures, it follows that the propositions and expectations are hypothesized that creative individuals have more skills in problem-identification and finding and can integrate apparently anomalous elements, thereby, finding solutions that deviate from the norm. The self-concept implications would suggest that the self is described by a larger number of categories that mark problems to be addressed and a self that is presented in terms of highly discrepant models, especially

in the future items. In addition, the creative individual uses more elaborate processing suggesting more flexibility to reorganize knowledge through combinations more often in problem solving. The self-concept expectations would follow that the self is identified by elaboration on salient categories such as work and the rephrasing and integration of categories describing the self.

The broadly descriptive, heuristic Geneplore model (Finke, Ward, and Smith (1992; Smith, Ward, Finke, 1995; Ward, Smith, & Finke, 1999) of creative cognition is a foundational theory for the study of cognitive creativity as a problem solving process. It is based on the assumptions that creative thought is a generative process that can move beyond discrete stored experiences, is open to experimental investigation, and that creative accomplishments based on ordinary mental processes are observable. The components of the triangular Geneplore model include the initial, generative phase where preinventive structures are formed and are interpreted during a cognitive exploratory phase. The generative phase involves the person constructing mental representations called preinventive structures that promote creative discoveries and the exploratory phase involves use of these properties to generate creative ideas. Resulting creative thoughts or insights can be either focused on specific problems or expanded conceptually through modifications to the preinventive structures and repeating the cycle. During the creative invention phases, many mental processes are involved such as association, retrieval, synthesis, analogical transfer, transformation, and categorical reduction.

Building upon this theory of highly creative individuals possessing unique mental flexibility, Holyoak and Thagard (1995) found that problem solving can be enhanced through the use of unique associative and analogical combinations that can bring about

"mental leaps" in scientific and artistic discoveries. Such discoveries include that found by Franklin between lightning and electricity and Galileo between earth/moon and earth/ship. Specifically, the use of analogies, mapping between dissimilar objects involving higher-order relations, can help to describe goals and constraints between two situations. Thus, causal relationships and connections can generate an analogous convergent solution. Futhermore, the use of metaphors, based on deeper relational and system mapping techniques, can extend cognitive problem combination flexibility as well as reorganizational associations. Powerful metaphorical associations can enlighten the highly creative individual into discovering combinations and connections that go beyond ordinary category structures between two domains of knowledge. Therefore, the following proposition and expectation is hypothesized that highly creative individuals use more discrepant combination heuristics in creating novel ideas. Thus, the self-concept expectations would suggest that self-concept will include more unusual combinations and discrepant categories.

Creativity is a complex, cognitive process suggesting the combined use of divergent thinking skills (Guilford, 1967) and convergent skills to put the novel ideas into action. This proposition suggests that the creative individual must also be a good planner suggesting a self-concept that is coherent with integration of knowledge structures in categories including possible downstream consequences such as career and goal blockages. Also, the self-concept will be identified with a large number of items within limited categories. The better planner proposition may be due to higher self-clarity of knowledge structures (Linville, 1985, 1987).

Weisberg (1999, 1995b, 1993) posited that many studies of creativity have focused on the tension between creativity and knowledge. He posited a "foundation" view suggesting that knowledge and creativity are positively related. Mainly, he proposed that influential work in a particular field is dependent on having acquired expertise in a domain and being able to draw upon prior foundational knowledge, discoveries, and analogies and connections within a field. He suggests that creative accomplishments more often come reproductively from the continuity of past experience to the present, for example in Picasso's *Guernica* masterpiece and the double helix of DNA, versus from the view of restructuring called productive thinking that is defined as independent or rejection of past experience. In addition, he suggests that creative thinking as a result of discontinuity in thinking involving the restructuring a problem doesn't mean the past is completely rejected with the new view of the problem at hand.

Further support for the power of fully developed knowledge structures and resulting expertise is found in Amabile's theory (1989) of creativity that results from the combination of domain skills, creative thinking and working skills, and intrinsic motivation. Additionally, Hayes (1989) found evidence, based on the biographies of 76 composers and 131 painters, that before notable, master-level performance in creativity is achieved, it takes about 10 years of immersion in a discipline, the 10-year rule. The "silent" or "uncreative" period of total immersion in a discipline as described by Hayes (1989) is further supported by biographical, qualitative research (Gardner, 1993; Gruber, 1981). Creative acts do not come by chance as often with the cognitive problem-solving model propositions; thereby, suggesting that hard work in the pursuit of domain mastery proceeds the creative act. Once a domain is mastered for the creative individual, they

become more self-confident in their skills and abilities to tap their knowledge structures for ideas and associations. Therefore, a possible implication to self-concept theory may suggest that this strong knowledge structure, once formed as a domain of expertise, supports Strauman's (1996) finding of stability of the self that can result within the self-discrepancy ideal and ought selves, regulatory focus, and structural features of self-concept. In addition, it's possible that the regulatory and control aspects of personal self-concepts are much stronger and resilient processes for the creative individual that is most insistent on hard work in pursuit of the creative act. In opposition to the proposal that excessive affective associations may be the result of low self-complexity, the cognitive problem-solving model suggests that the highly creative individual has high self-complexity (Linville, 1985, 1987) and strong importance differentiation abilities (Pelham & Swann, 1989). Therefore, a possible implication for self-concept theory and the highly creative individual may be found with their strong ability to self-regulate and control through the executive function of the self in order to solve problems (Baumeister & Vohs, 2003).

Hard work can be interpreted as practice in research by Ericsson, Krampe, and Clemens (1993) on elite professional violinists versus student violinists. The deliberate practice of skills by the creative individual is done in order to reach the highest level of performance possible in a domain. Practice consists of the activities involving structured, versus haphazard working styles with the involvement of a tutor or coach. Ericsson et al., (1993) found that deliberate practice was higher for the better violinists at an accumulated 10,000 hours of practice as compared to the 8,000 and 4,000 practice hours of the good violinists and music teachers, respectively. Another result in Ericsson et al.,

(1993) study on writers suggests that the most creative writers practice close to the maximum level they can endure. Therefore, creativity can be understood by the knowledge that the individual brings to the situation and its positive relation as a function of practice. Therefore, implications to self-concept theory suggest that people acquire meta-knowledge or declarative knowledge about the repertoire of mental and cognitive skills that they have acquired such that it's possible the highly creative individual will be more flexible and able to tap these skills for their use (Kihlstrom, Beer, & Klein, 2003). Foremost, the proposition and expectation hypothesized within the realm of building expertise through practice and hard work will include the highly creative individual relating to more role models in their striving for perfection. The self-concept expectation would follow that self categories will indicate the use of more diverse and unusual role models as well as combinations of models.

Many viewpoints on cognitive problem-solving and its relationship to creativity have been addressed including that of Ericsson (1996) on expertise acquisition and DeGroot (1966) on the expertise and cognitive strategies of master chess players. Findings suggested that master chessplayers searched less for the best move than less-skilled players due to their perception and ability to analyze the chess board into meaningful groups of pieces or "chunks." Chase and Simon (1973) estimated that chess masters store up to 50,000 different patterns of chess pieces in memory. The creative self, especially that of a master, is composed of elaborate processing abilities drawn from focused expertise in a domain or limited domains. Therefore, it is hypothesized that problem-identification and finding skills are more perfected and can be combined in original ways; thereby, contributing to increased creativity and development of

innovations. The proposition and expectation hypothesized is that highly creative individuals are "master chessplayers" shown by their expertise in a domain or limited domains and show more complexity of self-knowledge (Linville, 1985, 1987). Thereby, the self-concept expectation would suggest that self is composed of a limited range of categories that are principle-based and mainly consisting of work domains. In addition, the self-concept would be found to have categories showing complex linkages across and within listed items. According to the cognitive problem-solving model and theory proposed, the creative self is composed of elaborate processing abilities drawn from focused expertise in a domain or limited domains. Therefore, problem-identification and finding skills are more perfected and can be combined in original ways; thereby, contributing to increased creativity and development of innovations. See Table 3 for a complete listing of the cognitive problem-solving propositions and related self-concept expectations.

Insert Table 3 about here

The intent in this present study is to examine whether self-concept knowledge components of content and structures exhibit general cross-task and/or task-specific performance effects while participants work on three different creative problem-solving exercises. This study is an examination of what elements of individual self-concept are related to creativity. Foremost, is self-concept as composed of knowledge content and structures predictive of more creative performance as viewed through a social/nonsocial trait model, psychodynamic model, or a cognitive problem-solving perspective? Or, is it

possible that higher creative performance is more a combination of all three models suggesting an "evolving systems" approach to the study of creativity (Gruber, 1982; Gruber & Davis, 1988). This approach involves the interaction of the underlying principles of the organization of domain knowledge of the creator, the purpose or purposes the creator is pursuing, and the affective influences upon the creator.

METHOD

Sample

One hundred and three undergraduates were recruited from a large midwestern university to participate in what was claimed to be a study consisting of managerial exercises and problem-solving ability. The 48 women and 53 men plus 2 unreported gender individuals agreed to participate in this research study for extra credit in their introductory psychology courses. The subjects ranged from 18 to 47 years of age with the mean age at 19.47 with a standard deviation of 4.70. The college classification for subjects consisted mostly of freshmen and sophomores with 62.1 and 21.4 percent, respectively. Self-reported ACT scores for 85 subjects displayed a mean of 24.52 with a standard deviation of 3.86. In addition, 24 subjects self-reported SAT scores with a mean of 1209.17 and standard deviation of 192.80. The overall reported grade point average for 88 subjects indicated a mean of 3.01 and standard deviation of .63. In addition, over 68 percent of subjects indicated being from small cities with 20,000 to 150,000 in population to large cities with over 150,000 in population. Subjects reported taking less than 1 hour in business /management classes. However, when questioned about their work experience, it was found that most had worked part-time or full-time with a

reported mean of 3.57 years of work and 16 percent indicated having supervisory experience as well.

Procedures

This study included two two-hour testing sessions where participants were asked to complete a battery of psychometric measures. In the first hour of testing, the students completed a set of reference measures and a demographic form requesting background information. Also, subjects self-reported information on their current grade point average and total scores on the ACT and SAT. Mumford and Stokes (1992) found that self-reports made by subjects on their objective performance have produced reliable data. Subjects were asked to complete a set of short, covariate measures to be used as controls. The first reference measure subjects completed tested for verbal reasoning and general intelligence is called the Employee Aptitude Survey (EAS). The EAS has shown to produce retest reliabilities in the .80s and adequate predictive validities (Ivancevich, 1976; Ruch & Ruch, 1980; Tenopyr, 1969). In addition, subjects completed Riggio's (1993) social skills inventory that includes 90 behavioral statements that subjects self-report the statements that are descriptive of their own behavior. The inventory measures a total social skill level composed of the six constructs of emotional expressivity, emotional sensitivity, emotional control, social sensitivity, social expression, and social control with internal consistency coefficients in the low .80s. An "in-house" social desirability scale containing 12 items was completed by subjects based on the Crowne-Marlowe (1964) scale with internal consistency coefficient obtained in the .70s. High levels of agreement with the 12 items would indicate socially desirable responding by the

subject. Also, the Pelham and Swann (1989) self-concept scale was administered as a covariate to subjects to assess the construct validity of the new, expanded self-concept scale presented in this study to subjects. This newly, constructed self-concept measure that assesses past/present to future self-concept views is based on 99 significant life events and was administered during the 2nd hour of the first testing session.

Subjects were asked to return for the next two hour group testing session that was conducted 1 or 2 weeks later. During this testing session, subjects were directed to work individually on three novel, ill-defined problems where their self-concept views might influence performance and motivation outcomes (Reiter-Palmon, Mumford, & Threlfall, 1998). These three problems consisted of an entrepreneurial task, a business consulting and planning task, and a marketing and advertising task. All three exercises were used and rated to assess the creative and innovative performance ability and skill of the subjects tested.

Self concept Measure

The principle measure used was a recently developed comprehensive self-concept measurement (Connelly, Mowry, Gaddis, & Mobbs, 2000) based on the self-concept taxonomy developed and reported in the technical report by Mobbs and Connelly (2000). This self-concept measure was developed after an extensive literature review on self-concept and respective measurement scales including that of assessing identity formation and difficulties (Erikson, 1968), assessing academic self-concept, social self-concept, global self-concept, and physical self-concept (Byrne, 1984; Marsh, 1990; Shavelson & Bolus, 1982), and assessing different content and structural features of self-concept

(Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996; Kihlstrom & Cantor, 1984; Linville, 1985, 1987; Markus, 1977; Showers, Abramson, & Hogan, 1998).

Construction of the new self-concept measure was based on generating a list of significant life events over the course of one's life from early to late adulthood. Additional events were selected from Holmes & Rahe's (1967) life inventory and from developmental tasks facing individuals in life (Levinson, 1986, 1990). After an initial list of 130 items, two raters evaluated the life events for developmental significance on a five-point scale. The final self-concept measure contains 99 significant life events that may occur in during early, middle, and adult life and are sorted along three dimensions of affective valence, involving other people such as social versus solitary events, and responsibility. Subjects were asked to sort the events into their own meaningful categories that best describe themselves from the past to the present. Then, subjects were asked to create labels for each category generated and to list the events preferred for each category. Once categories are established, subjects are asked to rate each category on a five-point scale from 1 (least important) to 5 (most important). After completing the category lists and selections under each category for the past/present view of self, subjects were asked to think ahead to the future and the exercise was repeated by subjects based on their thoughts about what their future view of self would be. See Figure 1 for the self-concept measure.

Insert Figure 1 about here

Creativity Performance Measures

The intent of this study is to address what elements of self-concept knowledge are related and predictive of better creative performance. Subjects were asked to complete a series of three creative exercises based on managerial decisions. These exercises included an entrepreneurial task that involved starting your own business, a consulting and planning task that involved organizational change and development in a company, and a marketing exercise (Redmond, Mumford, & Teach, 1993) that involved the task of 'create a magazine ad' for a 3D-TV product. The first two tasks were newly created for this study. And, only minor changes were made to the marketing exercise that included changes to the equipment description to maintain a realistic scenario with up-to-date descriptions of the technology.

Subjects were informed that the study was to assess how people formulate and solve business problems with the use of three creative exercises. On the first creative exercise, subjects were informed in the introduction that this study was designed to assess their ability to plan and create a new business in an unused building. The entrepreneurial task included a detail of the financial considerations and possible customer target populations that the subject could use to assess how to best build a business in the newly inherited commercial building. After reading background information, subjects were asked to develop a business idea and to provide a one-paragraph answer to four questions. The questions included: 1) describe the nature of the business? 2) what will make the business successful? 3) how will the business be distinguished from competitors? and 4) what changes do you see happening in the business over time?

The second creative consulting task involved organizational change and development and was drawn from prior case studies on Harley-Davidson. Subjects were

asked to read a short, two-paragraph scenario and to assume the position of a CEO of a car manufacturing company to answer questions pertaining to relevant issues addressed in the scenario. Strengths in the case included branding, dealership networks, and customer loyalty. Weaknesses stated as current problems included lack of innovation and product quality. After reading through background material about the strengths and weaknesses of the company, subjects were asked to provide one paragraph answers to six questions: 1) what are your goals for the company? 2) what immediate steps would you take to save the business? 3) what long-term plans would you make to turn things around? 4) what steps would you take to improve the company's reputation? 5) how would you insure these changes were made? and 6) what backup plans would you need to put in place?

During the third marketing creative exercise, subjects were informed in the introduction that this study was designed to assess how people formulate and solve marketing problems. The marketing exercise derived from Redmond, Mumford, and Teach (1993) included a detail of the product, a three dimensional holographic television (3D-TV). Other descriptors included its features, production schedule, retail price and production pricing curve, and competition information. The subject was asked to review the information given, and then to create and describe or illustrate in detail a full-page magazine ad to help sell the product. Subjects were asked to provide a three to four paragraph description of a full-page advertisement indicating when, where, and how frequently they would run the advertisement. See Figures 2, 3, and 4 for criterion creativity measures.

Insert Figures 2, 3, & 4 about here

Initially, four trained raters rated all subjects on the criterion task using common rating scales. These scales included realism, positive and negative life views, efficiency, flexibility, quality, originality, risk taking, autonomy, seeing opportunities, need for structure, and building something (Guilford, 1967; Fleishman, 1953a). Examples of subject responses for the rating scales of 1 (low), 2 (medium), and 3 (high) for each scale were used to create the final five-point scale benchmarks for the eleven rating tasks for each of the three creativity exercises. Some of the dimensions were found to be ambiguous and difficult to rate and were dropped. Therefore, for the purposes of this study the scales of quality and originality will be used.

Based on a variation of the Hennessey and Amabile (1988) consensual rating technique, two psychologists read the written responses for the three exercises with a list for evaluating quality and originality considerations. Specifically, quality evaluations examined the effectiveness and completeness of the responses with originality considering the surprise, novelty, and uniqueness of responses made. Then, five solutions were selected to indicate high, medium, and low levels of quality and originality. Subsequently, five psychologists rated the benchmarks on quality and originality. Benchmark anchors were selected based on means near the intended scale point and low standard deviations. See Figure 5 for the benchmark quality and originality anchors developed for the three tasks.

Insert Figure 5 about here

The scoring of the creativity criterion was based on originality indicating the unexpected, descriptive, and newness of the solution. Also, quality was scored on the completeness and effectiveness of the solution. The dimensions of quality and originality were found to have reliability coefficient alphas of .85 for each dimension on the entrepreneurial criterion task. Quality and originality dimensions on the planning criterion task were .81 and .73, respectively. Also, quality and originality dimensions on the creativity task were .81 and .86, respectively. See Figures 2, 3, and 4 for the entrepreneurial, planning, and marketing exercises.

Metric used to test hypotheses

In this study, eleven students of undergraduate psychology classes volunteered to be trained as raters in order to score the self-concept expectations of the proposed models. The raters were given the rating sheets labeled as Study A, B, and C in order that no preloading or hypothesis guessing could occur as to what the scales were measuring. After reviewing and signing a consent form to be involved in this study, raters were promised a nominal fee to be paid to them for their valued time on this study after completion of their ratings. An initial pilot study was conducted to assess the understanding as well as ability of the raters to score judgments on the three different self-concept models proposed defined by variables indicating social/nonsocial, psychodynamic, and cognitive problem-solving constructs. Scoring included the methods of frequency indicating the number of items counted and benchmark ratings based on Likert five-point rating scales from low to high agreement. Training included three

different sessions conducted per self-concept model in order to have more rater reliability and control per self-concept model. The raters were given a verbal and written review of instructions and benchmark rating scales to identify the markers in the self-concept measure related to creativity. Questions were solicited and answered to clarify any definition, instruction, or concerns by raters. The pilot tests of ratings were conducted in a period of one week to insure understanding and identification of correct self-concept markers based on a set of examples given to them for comparison.

The study results were collated and packaged for the initial pilot study sessions per self-concept model. Interrater agreements were assessed during the pilot study and resulted in ranges of 48 % to 76% agreement across all the models, past/present to future. See Table 4 for interrater agreements across all models. Raters completed a biographical form indicating gpa, years worked, and courses taken in social, cognitive, and clinical psychology. The mean number of years raters worked included 3.55 years. The raters had taken 1.22 classes of social psychology, 1.0 class of clinical psychology, and .44 class of cognitive psychology. Results from the pilot ratings were reviewed and discussed to make sure the instructions were clear. A few initial proposed variables were dropped due to inconsistent ratings, frequency counts, and unclear definitions found during the pilot study. See Tables 5, 6, and 7 for the set of revised self-concept variables assessed in this study and respective definitions. Also, see the resulting revised rating scales in Tables 8, 9, and 10 for the assessment of the self-concept models defined as Study A, B, and C for social/nonsocial, psychodynamic, and cognitive problem solving models, respectively.

Insert Tables 4, 5, 6, 7, 8, 9, and 10 about here

Commitment to the duration of the study was assessed and challenged with eight raters completing the entire study. Additionally, note should be made that several frequency count variables were dropped due to inconsistent ratings during the pilot study. The variables that were rated and judged as frequency counts and comparisons between the past/present to future findings resulted in higher means and standard deviations as found in Table 13. Specially, the variables of discrepancy, category items, and flexibility should be viewed for their different mode of rating technique and possible threat to validity. In addition, due to incomplete future data from subjects, comparisons in the variables of past/present to future discrepancy and flexibility could not be completed resulting in N = 83 and N = 85, respectively. These results suggest some caution should be made when viewing these specific variables. Overall, the resulting rater scores found on the three representative self-concept models were compared to the total scores derived from the creativity criterion.

Analyses

In this study, the analyses were conducted to examine the possible relationships that exist between elements of self-concept and creativity performance based on the three proposed models of social/nonsocial, psychodynamic, and cognitive problem-solving self-concepts. Through the use of a new, comprehensive self-concept measure and three different creative exercises, performance relationships were examined. Foremost, the self-concept scales included in the three models were correlated. The self-concept scores were correlated with verbal IQ, social desirability, and social skills as covariates to

further assess validity. Also, construct validity issues of the new self-concept measure were examined by correlating the Pelham and Swann's (1989) Self-concept measure. In addition, the self-concept model scores were correlated with the resulting performance scores on the three creativity criterion measures for total performance, across performance, and then across the three models of creativity including the social/nonsocial, psychodynamic, and cognitive problem-solving models.

A series of correlational and blocked regression analyses were conducted where the ratings/counts were linked to the criteria based on creative originality and quality. Finally, stepwise regressions were conducted on each proposed self-concept model to assess the most significant variables flowing from the individual models and to distinguish cross-task differences across all three models.

RESULTS

Correlational Analyses

Correlations among the 29 variable influences representing the past to present self-concepts are presented in Table 11. Many substantial and meaningful patterns of relationships were found within the three scales. Specifically, the self-concept construct of group-based was positively related to social interest (r = .86), conscientious (r = .52), conformity (r =.72), exaggeration (r =.51), elaboration (r =.64), and role models (r =.56) while being negatively related to social focus (r = -.24) and cognitive focus (r = -.37). A group-based self-concept requires conforming to social norms with inducements to exaggerate and elaborate in order to conform. On the other hand, the ability to focus socially or cognitively will be limited due to social demands on time. In contrast, the

ability to have a focused cognitive self-concept was found to be negatively related with elaboration (r = -.44), unusual combinations (r = -.46), complexity (r = -.44), social interest (r = -.37), conscientiousness (r = -.41), and role models (r = -.36) and positively related to clarity (r = .31), social focus (r = .60), and flexibility (r = .27). Very strong relationships were evidenced within the social self-concept between conformity and group-based (r = .72), social interest (r = .66), conscientiousness (r = .64), goal/planning (r = .54), problems identified (r = .57), elaboration (r = .66), category items (r = .64), and role models (r = .50). These strong social self-concept relationships point to the commitment and strength of effort and time needed in order to adapt to social environments versus the lack of effort or interest involved when a cognitive problem-solving self-concept is more prominent.

Further construct validity evidence was found in the strength of the psychodynamic self-concept of the risk taker who is open-minded (r = .69), dream-like (r = .63), and imaginative (r = .74). Also, the risk taker construct was found to have very strong relationships with deviance (r = .59), emotional, unorganized (r = .62), and exaggeration (r = .69). While findings indicate the risk taker as emotionally volatile, strong evidence was found for the cognitive problem-solving constructs of detail-oriented (r = .52), elaboration (r = .58), category items (r = .52), and role models (r = .52). Further meaningful relationships were found between the cognitive problem-solving variable of problems identified with positive relationships to cognitive based elaboration (r = .76), complexity (r = .46), and role models (r = .56), to socially-based social interest (r = .52), conscientiousness (r = .57), conformity (r = .57), and goal/planning (r = .54) while negatively related to limited cognitive focus (r = -.45) and social focus (r = -.38).

Also, the problems identified variable crossed over into the psychodynamic self-concept with strong relationships with dream-like (r = .53), emotional (r = .58), imaginative (r = .59) and exaggeration (r = .62). Problem-solving ability involves the use of a wide spectrum of social, psychodynamic, and cognitive faculties. It is supported by research on the problem-solving identification process that found that individuals have a wider ability to pay attention and observe many possible alternatives and elaborate more extensively on solutions versus using cognitive focus at this stage (Mumford, Mobley, Uhlman, Reiter-Palmon, & Doares, 1991). While these strong findings indicate further construct validity for the past to present self-concept models, the projected future self-concept constructs may paint a different picture.

Insert Table 11 about here

While there were overall more significant relationships found in the past/present self-concept variables, the projected future self-concept variables held some evidence for meaningful relationships. See Table 12 for the future self-concept variable correlations. Also, see Table 13 for correlations per model for the past and present. The social focus variable evidenced strong negative correlations for risk-taker (r = -.42), deviance (r = .40), open-minded (r = -.34), problem identification (r = -.36), and role models (r = -.36) with a positive relationship with cognitive focus at (r = .42). Whereas evidence suggested a much stronger past/present dream-like self-concept, the future holds less projected concern for dreaming with emotion (r = .38), imagination (r = .37), original (r = .35) variables compared to past/present emotion at (r = .47), imagination (r = .73), and

original (r = .64), respectively. Additionally, the past/present pessimism variable evidenced many significant relationships with group-based (r = .37), social interest (r = .39), goal/planning (r = .43), negative emotion (r = .70), problem identification (r = .42), elaboration (r = .42), category items (r = .43) and role models (r = .41). On the other hand, the projected future pessimism variable was most significant at negative emotion (r = .69), unusual combinations (r = .29), category items (r = .26), and role models at (r = .22). Thus, it seems that subjects hoped to attain a more positive, future self-concept. The question is whether promoting less pessimistic views in the future will produce more or less creative performance and whether social desirability is influencing this future self-view.

Insert Table 12 and 13 about here

With respect to more construct validity evidence, please review the reference measures of verbal reasoning, social desirability, and social skills in Tables 14 and 15. The social skills inventory measured social intelligence based on the six different constructs of emotional and social expressivity, sensitivity, and control. This multidimensional construct of social intelligence involves skills of receiving, decoding, and understanding information in social environments. Furthermore, social intelligence involves active participation with the use of verbal and emotional expression skills tempered by social behavior regulation and adequate role-playing. Further construct validity supported the past/present social/nonsocial scales where negative relationships exist between solitude and emotional expressivity (r = -.22), goal/planning with social

expressivity (r = -.20) and total social skills with social interest (r = -.21). In addition, elaboration was negatively related to total social skills at (r = -.25). The projected future findings held more evidence in the relationships between total social skills and negative emotion at (r = -.30), deviance (r = -.24), and emotionally unorganized (r = -.24).

Insert Tables 14 and 15 about here

Further review of the past/present Table 14 showed very weak negative relationships with social desirability in the variable of elaboration (r = -.21*) and relationships with social interest (r = -.19t) and emotion (r = -.19t). On the other hand, the social desirability for the future findings included negatively significant group-based at (r = -.23*) and social interest at (r = -.27**). Though the correlations were not extremely high, the social/nonsocial group-based and social interest results should be viewed with some caution in the future portion of this investigation. These findings were not overwhelming, suggesting that past/present and future scales were not overly influenced by social desirability. In addition, with the exception of the past/present original (r = -.29), the self-concept scales were effectively unrelated to the verbal reasoning measure used in this study.

Overall the most significant evidence to construct validity of the self-concept measure was found within the comparisons to Pelham and Swann's (1989) self-concept measure in Table 16 - past/present to 'Others', Table 17 - past/present to 'Certain', and Table 18 - past/present to 'Important'. Specially, the past/present and future reporting aspect of this study found overwhelming support in comparison to the 'Certain' and

'Importance' ratings of this reference measure, respectively. The past/present self-concept study found strong support within 'Certain' ratings with strong positive relationships with athletic ability and group-based (r = .35), social interest (r = .29), conscientiousness (r = .27), conformity (r = .26), deviance (r = .22), open-minded (r = .20), emotional (r = .25), exaggeration (r = .23), problem identification (r = .26), elaboration (r = .23), category items (r = .20), and role models (r = .34). Another 'Certain' self-concept measure of artistic and/or musical ability found strong positive relationships with the past/present variables of social interest (r = .22), conscientiousness (r = .20), social focus (r = .24), solitude (r = .31), dream-like (r = .25), emotional (r = .21), imagination (r = .21), detail-oriented (r = .33), problem identification (r = .26), elaboration (r = .21), and complexity (r = .21). These findings suggest the need of the athlete to be adept at social skills due to the demand of sports being group-based. In addition, the strong emotional and deviance relationships that were found do suggest the socially, acceptable outlet that athletic participation can offer to individuals. On the other hand, the artistic and/or musically inclined found strong support across a spectrum of variables with the ability to be socially focused, yet comfortable with solitude. Also, the artistic and/or musical relationships showed possible tendencies toward the use of dreaming, imagination, and emotion to enhance detailed-oriented performance. Interesting positive relationships also suggested that the artistic and/or musically inclined were cognitively adept at problem-finding, elaboration, and unique combinations through the use of complex self-knowledge structures that supported the "master chess players" analogy (Linville, 1985, 1987).

Insert Table 16, 17, and 18 about here

More compelling construct validity relationships were found in the comparison of Pelham and Swann's (1989) 'Importance' section with emotional stability and discipline. Emotional stability had significant negative relationships with conscientiousness (r = -.22), conformity (r = -.26), elaboration (r = -.26), complexity (r = -.28), and role models (r = -.24). Discipline had significant positive relationships with group-based (r = .22), social interest (r = .24), emotional (r = .24), problem identification (r = .23), and category items (r = .22). These findings suggested that emotionally, stable individuals will desire less to conform by elaboration in social settings or to look to role models for identification. In addition, findings suggested that disciplined individuals were better adept in social settings with proper use of emotion through problem identification and ability to be expansive.

While the above findings showed rather robust construct validity for the past/present section of the study to Pelham and Swann's (1989) 'Certain' and 'Importance' categories, the future self-concept variables found support in the 'Other' section of their self-concept measure suggesting that future predictions of self-concept may depend on comparing oneself to others. See Tables 19 - Future to 'Others', Table 20 - Future to 'Certain', and Table 21 - Future to 'Importance.' For example, the 'Other' emotional stability construct was positively related to group-based (r = .24) and social interest (r = .35). In addition, the 'Other' sense of humor construct was positively related to group-based (r = .23), conscientiousness (r = .23), emotion (r = .27), and elaboration (r = .25). On the other hand, some parallel relationships existed in both the past/present and future

self-concepts. For example, the 'Certain' physical attractiveness was also significant in the future self-concept variables of group-based (r = .24), social interest (r = .28), conscientiousness (r = .21), conformity (r = .27), original (r = .23), problem identification (r = .33), elaboration (r = .33), unusual (r = .32), and role models (r = .31). Overall, very meaningful patterns of relationships were evidenced in the comparison of these two self-concept measures enhancing the veracity of construct validity. While the Pelham and Swann (1989) measure described a more compact view of measured self-concept, the new measure expanded the self-view through more definition and detail to the underlying influences to the personal past/present as well as projected self-concept.

Insert Table 19, 20, and 21 about here

Performance Relationships

With many meaningful relationships evidenced that helped to establish the validity of the self-concept measure as a viable assessment tool, the next concern in this study was to establish the relationship of self-concept assessment with performance across three creative tasks - entrepreneurial, consulting/planning, and marketing/advertising. The results obtained when measured creativity was inter-correlated with the three tasks and the self-concept models of social/nonsocial, psychodynamic, and cognitive problem-solving variables are presented in Table 22. The correlations obtained when comparing past/present and future self-concepts indicated some supporting relationships. Entrepreneurial tasks require a realistic view of possible

business success through capitalizing on a niche or need in the community not presently tapped; therefore, opportunity seeking and building something to match the niche is important. Some relationships existed in the future self-concept of clarity and coherence (r = -.24) and complexity (r = -.20) suggesting a less complex and flexible self-concept will benefit future entrepreneurial success. The consulting/planning task required one to be adept at change and restructuring work patterns and social situations. Therefore, the significant finding of negative emotion (r = .24) suggested that creative subjects were familiar with the upheavals, resistance, and negative affect involved in change. On the other hand, the marketing task that involved creating a public campaign advertisement evidenced a negative relationship with past self-concept category items (r = -.23) in addition to negative relationships with future self-concept variables of group-based (r = -.26), solitude (r = -.23), and deviance (r = -.26). This finding suggested a self-concept that was more agreeable and less deviant that focused attention towards producing a more harmonious creative ad. Also, it's possible that the advertising campaigns reflected a more focused and centered approach around fewer product categories and feature descriptions. Therefore, creative performance was reflected by a more simple and elegant advertisement that focused on capturing the most appeal with targeted audiences. In addition, the projected future self-concept variables suggested that the most creative ad campaign resulted from working self-concepts that desired to work with others versus being deviant and solitary.

Insert Table 22 about here

In addition, correlations were compared with the total creativity scores for the three self-concept models in Table 23. Total creativity score correlations for the past/present measure produced one main significant finding with negative emotion at (r = .20) and a marginal significance in deviance at (r = .17). These findings indicated that future social/nonsocial self-concepts were negatively related to the marketing/advertising task at (r = -.24) and the past/present cognitive problem-solving self-concept was marginally significant at (r = -.18) to the marketing task as well.

Insert Table 23 about here

Self-concept Model Regressions

While some support was found between creative performance and negative emotion and deviance, an overall assessment was needed to establish which of the self-concept models and variables held the most predictive influence on creativity. Due to the exploratory nature of this study, further analyses were made using blocked and step-wise regressions. See Tables 24 and 25 for summaries of the regression models with and without verbal reasoning. Multiple correlations were calculated with adjusted multiple correlations to adjust for the models containing different quantities of variables. Upon viewing the results of regressions based on the different creativity tasks and the separate models of self-concept, no significant findings resulted when the three tasks were separated with variable composites of the self-concept models. But, total creativity across all creative tasks in Table 26 revealed that the psychodynamic model has a marginally

significant multiple correlation at R = .53 with an adjusted multiple correlation at R = .40 of total creativity.

Insert Tables 24, 25, and 26 about here

In order to predict better the variables that had the most influence on creative performance, a series of blocked regressions were performed and analyzed. See Table 27 for these blocked regressions. Of the individual models, the psychodynamic model for past/present self-concept was marginally significant with a multiple correlation at R = .53 and adjusted multiple correlation of .40. Strong positive significant betas emerged in the psychodynamic model including the original variable at (B = .34*) and negative emotion at (B = .38*) as related to total creative performance. Although the overall significance of the past/present social/nonsocial model was missing, one beta emerged with significance, conformity at (B = -.43*). Thus, high creative performance was negatively related to conformity to social norms and conscientiousness was marginally significant at (B = .26t).

Insert Table 27 about here

Further examination in Table 28 and 29 revealed that when the past social/nonsocial model were combined and blocked with the psychodynamic model, marginal significance resulted. The multiple correlation was found to be R = .61 with an adjusted multiple correlation of .40. Overall, this analysis helped to give further evidence

that the past/present psychodynamic model predicted better creative performance as well when in combination with the social/nonsocial model.

Insert Tables 28 and 29 about here

Another series of regressions were conducted with blocked verbal reasoning in order to assess the possible influences between the self-concept models. In addition, the originality and quality performance constructs on the three creative tasks were separated for further analyses. See Table 30 for these regressions. The most noteworthy findings indicated that the psychodynamic model was marginally significant on the quality component rated for effectiveness and completeness of the responses on both the consulting/planning and marketing/advertising tasks. Also, when combining the social and psychodynamic models, marginal significance was found in the quality component of the consulting/planning task. Further investigation into the split between quality and originality ratings revealed more significant results for predicted future self-concept views. Originality described as surprise, novelty, and uniqueness of responses was significant for the entrepreneurial exercise in both the psychodynamic, and cognitive problem-solving model combination and the psychodynamic, social, and cognitive problem-solving model combination. Furthermore, originality was significant in the marketing/advertising exercise in the cognitive problem solving and psychodynamic combination. Marginal significant findings resulted for originality on the marketing/advertising task in the psychodynamic model and the social and psychodynamic model combination. In summary, the originality component of the

entrepreneurial and marketing/advertising tasks held more robust significant findings for the projected future self-concepts of subjects who possessed more psychodynamic and cognitive problem-solving constructs. On the other hand, the quality component of the consulting task only found marginal significance for the subjects that held past/present self-concepts composed mostly of psychodynamic constructs with little social/nonsocial tendencies.

Insert Table 30 about here

A final analysis was conducted using a stepwise regression. This analysis was conducted to find the most predictive self-concept variables influencing creative performance across all three models. See Table 31 for these results. All self-concept variables were entered per model and only one variable of least significance was removed at a time. From these stepwise regressions, total creative performance was significantly influenced by the past/present social/nonsocial variables of conscientiousness (B = .29) and conformity (B = -.35), the psychodynamic variables of open-minded (B = -.25), original (B = .37**) and negative emotion (B = .35**), and the cognitive problem-solving model and respective variables of cognitive focus (B = .22), discrepancy (B = .31), category "fluency" items (B = -.34*), clarity (B = .15), and flexibility (B = -.32). The multiple correlation for this combination resulted in an overall R = .61 with an adjusted multiple correlation of .47. Further stepwise regression analysis on this model revealed that the most significant past/present self-concept variables were the psychodynamic variables of original (B = .21*) and negative emotion (B = .38***) and

the cognitive problem-solving variables of focus (B = .21*) and category items (B = -.25*). These four self-concept variables held an overall multiple correlation of R = .51 and adjusted multiple correlation of .46. Thus, to be highly creative and innovative, the current self-concept variables suggested that outstanding performance depended and was influenced by negatively-laden emotion and original thinking that was focused.

Insert Table 31 about here

With these results in mind, a stepwise regression was performed on the future self-concept variables expected to predict creative performance. See Table 32 for the future step-wise regression results. Due to the fact that these self-concept variables were based on what might be in the future description of individual self-concept versus what was currently viewed as personal self-concept, some discrepancies may have resulted. The stepwise regressions revealed that predicted future self-concept and creative performance was most significant with the variable combination of future social/nonsocial group-based (B = -.33*), conscientiousness (B = -.16), conformity (B = .14), and social focus (B = -.12). Also in this combination, creative performance was influenced by the future psychodynamic variables of original (B = .26t), negative emotion (B = .30*) and detail-oriented (B = .54**) with the future cognitive variables of cognitive focus (B = .36**), discrepancy (B = -.15), complexity (B = -.42**), clarity (B = -.18), and role models (B = -.16). The resulting multiple correlation for the future self-concept combination was R = .62 with an adjusted multiple correlation of .46. Further stepwise regressions revealed that the most predictive future self-concept variables for creative

performance included social/nonsocial group-based (B = -.21t), psychodynamic detail-oriented (B = .43**), and the cognitive problem-solving variables of cognitive focus (B = .22t), and complexity (B = -.33*). The overall multiple correlation for these four variables was R = .51 with an adjusted multiple correlation of .44. These four future self-concept variables suggested that creative performance was negatively related to being concerned about group social activities. In addition, paying more attention to detail through cognitive focus and limited complexity of self-knowledge enhanced creative performance.

Insert Table 32 about here

In comparison to the most predictive variables between the past/present and predictive future self-concept views, cognitive focus was significant across both and related with less category item generation or fluency. The complexity of self-knowledge significance for future self-concept needs to be compared with theory predictions for further discussion. The main difference between the past/present and future self-concept views was found in the very robust and significant psychodynamic variable of negative emotion (B = .38***) that predicted outstanding creative performance in the past/current self-concept. As noted earlier, the phenomenon of social desirability did not influence the subjects desire to project more favorable and agreeable self-concepts versus negative emotions in their personal future self-concepts. Also, the variable of detail-oriented (B = .43**) was very significant in the future self-concept views and was predictive of creative performance. It did hold true to the correlational comparisons made earlier with Pelham

and Swann's (1989) artistic and/or musically inclined self-concept that suggested attention to detail was important. Overall, some very significant findings have been discovered in the analyses performed and it will help to further our understanding of predictive components of self-concept for outstanding creative and innovative performance.

DISCUSSION

Before considering the conclusions about the use of self-concept models subsuming variables under social/nonsocial, psychodynamic, and cognitive problem-solving frameworks to predict outstanding creative, innovative performance and potential, the limitations of this current study must be examined. Initially, this current investigation must be understood for the exploratory nature of attempting to develop a comprehensive self-concept assessment tool as well as its relationship with predicting creativity. Foremost, the initial results were very supportive of construct validity of the new self-concept measure with the covariate reference measure (Pelham & Swann, 1989). Also, the scores were not significantly influenced by intelligence and social desirability (Riggio, Watring, & Throckmorton, 1993). Specifically, there was an interpretable pattern of relationships between the 'Other' self-concept (Pelham & Swann, 1989) portrayed and the Future results of the new self-concept measure. Also, the "Certain' and 'Important' categories aligned with the Past/Present for the current self-concept measure suggesting more construct validation of this measure. Therefore, the measure was found to have meaningful relationships suggesting construct validity for measuring personal self-concept.

Furthermore, it is of note that the two self-concept measures captured different aspects of self-concept with Pelham and Swann (1989) focused on overt, descriptive self-concept as a direct measure and the new self-concept measure described a more covert and definitional self-concept comprised of specific life events. In support of this finding, the social skills inventory evidenced further construct validity for the emotional and social aspects of the new self-concept measure. Findings suggested that psychodynamic and social/nonsocial variables held some validity. Thus, emotional tendencies may not be overtly recognizable to report on a direct measure. Whereas, judgment ratings by raters on the indirect self-concept measure may be an alternative or supporting measure to detect patterns such as the meaningful patterns found in this investigation on negative emotions, lack of conformity, and social anhedonia. Although the self-concept measure evidenced construct validity (Messick, 1995) with the reference measures, future research may be needed to further refine and to extrapolate more significant relationships in measuring self-concept with other studies on self-concept. Thus, other self-concept measures may yield different findings. Although judgment ratings were made as an indirect measure of self-concepts, there were strong meaningful relationships with the direct self-concept measure.

Furthermore, it is of note that this study was based on an undergraduate sample in a "laboratory" setting; therefore, caution should be made to generalizing findings to other types of criteria. Subjects did not have managerial positions at the time of the study, but many had work experience, part-time or full time. In addition, many students had exposure to group activities during their past to present lives. Therefore, the three entrepreneurial, consulting, and marketing exercises were not irrelevent exercises,

because students could perform the problem-solving tasks and questions required of the exercises. This comprehensive creative study packet simulated the work settings and problems faced by managers and was developed based on careful analysis and use of similar cases (Redmond, Mumford, & Teach, 1993; Mumford, Connelly, Helton, Van Doorn, & Osburn, 2002).

Another possible limitation concerns the motivation of subjects involved within this structured situation solving creative problems on written exercises versus solving the problems in a more open, natural and unstructured environment. The motivational influences and social, environmental context impacts on the relationship between self-concept and creativity could not be addressed due to the limitations of this study. It is of note that "real-world" environments and social contexts (Katz & Kahn, 1978) would enhance situation complexity (Stewart, 1967, 1976, 1982) and, thus, heighten or dampen creative performance (Yukl, Kim, & Falbe, 1996). Therefore, this analysis was limited to the self-concept variables within theoretically-based models that effect creative problem-solving performance based on quality and originality (Guilford, 1950, 1967). The influences of group cohesion, team processes, interpersonal interactions, and environmental constraints will have to be considered in future research.

With the limitations and the exploratory nature of this study, it is important to note that meaningful relationships and implications resulted between certain self-concept models and variables with higher creative performance. The initial regressions that composited variables under the theoretical models evidenced no significant relationships across the three creative tasks for past/present and future self-concept. Further investigation revealed a marginally significant relationship between the psychodynamic

model and total creativity performance. Extended analysis revealed evidence that the psychodynamic model was marginally significant on the quality component for both the consulting and marketing tasks. Also, the combination of the social/nonsocial model with the psychodynamic model revealed marginal significance on the quality component of the consulting model. More compelling evidence for individual hypothesized self-concept variables were found as significant betas. The past/present psychodynamic model held two significant variables of original and negative emotion for creative performance. However, none of the past/present or future social/nonsocial and cognitive models held overall significance in the composited regressions, but the variables of conscientiousness and conformity indicated possible evidence for meaningful relationships with creativity. Specifically, when the past social/nonsocial and psychodynamic models were combined, the conformity variable held a strong negative relationship with creativity.

The relational evidence found between the past/present social/nonsocial and psychodynamic model variables was supported by several of the self-concept theories discussed earlier. Foremost, the finding that creativity was influenced by the nonconforming, socially atypical variable and conscientiousness variable supports work by Feist (1999) and Feist and Gorman (1998) that suggests exceptional creative types usually do not conform to basic life roles. Although this study did not separate subjects by the arts and sciences as Feist & Gorman (1998) did, several indicators suggest support for both the main differences found between artists and scientists. The differences found include the nonsocial attributes of artists such as anxious and rebellious traits versus the conscientiousness trait of scientists and their willingness to accept authority. Also, this strong nonconformity finding supports the self-concept view that focuses on creative

types being nonconventional and less subject to social boundaries and conventional standards (Simonton, 1994).

Although these variables indicate strong person associations, it is important to note that exceptional creativity flows when a product is accepted and valuable to the society or domain experts present at the time (Simonton, 2003; Csikszentmihalyi, 1990; Gardner, 1983, 1993). Thus, it follows that reverberating tension may exist in the working self-concept of the highly creative due to this need to fit in socially for acceptance of their creative efforts (Baumeister and Vohs, 2003). The most significant finding in this study lies in the model of the psychodynamic self-concept in the variables of negative emotion and original. These findings are supported by the work of Eysenck (1990, 1992, 1994, 1995) on psychotism, flat associative heirarchies (Simonton, 1999b), and Martindale & Armstrong (1974) on social anhedonia and high cortical arousal levels of introversion. Negatively-laden emotion pushed painter, sculptor, and architect Michelangelo into suffering several psychotic episodes as well as Van Gogh into suicide (Simonton, 1994; Gedo, 1989a). Several great research scientists suffered from the pains of self-imposed isolation for the sake of creative discoveries such as Einstein and Freud (Gardner, 1993). Feist (2004) summarizes the scientific findings on frontal lobe functioning and resulting effects on creativity as a result of both inheritable qualities as well as the dynamic plasticity of the brain (Pincus, 2001) that can transform due to environmental influences such as abuse. Lodged within the frontal lobe behind the eyes are powerful skills of perspective-taking, empathy, social knowledge, and deception detection as well as behavioral characteristics such as the inability to concentrate and the lack of impulse control found in attention deficit disorders (see Feist, 2004; for a review

of this literature). With robust findings on the physical characteristics of brain functioning and creativity, it is imperative to take the steps forward towards more focus on how the dynamic, self-concept with unique shape and form relates to creativity. Thereby, findings in this study furthers our understanding and identification of model-based knowledge structures and the reciprocal processing abilities that organize personal values, characteristics, life events, and evaluation of self-relevant information (Mobbs & Connelly, 2000; Showers, Abramson, Hogan, 1998).

Due to the lack of any positively rated social variables in the past/present self-concept, introversion is an overall factor. Several implications and possible applications can be made to the self-concept that is mostly psychodynamically-driven. Additional research found evidence that decreased latent inhibition (LI), the inability to screen out irrelevant stimuli from cognitive focus, is related to higher creativity (Carson, Peterson, & Higgins, 2003). Thus, the highly creative, introvert, with the ability to have more open spans of attention, has the significant capacity to over-include stimuli that would be rather irrelevant to others. This unique ability of hypersensitivity and capacity to over-include stimuli can lead to unusual combinations and original associations as well as over-stimulation, if not regulated. Consider the portrait artist through the practice of drawing hundreds of faces has conditioned his or her brain with mental face templates and, in turn, has the perceptual capacity to see forms of faces in ordinary structures. Thus, it can be posited that due to the intense practice (Ericsson et al. 1993) and intense mental stimulation involved in creative work, that the mind at times takes over in unbridled flows of thought processes and associations. Thus, creative acts will be completed by the

individual most able to free cognitive space for attention through regulation as supported by Leary and Tangney (2003).

Negative emotion in this investigation is supported by the negatively laden emotional traits found in the psychoticism scale including aggressive, cold, creative, impulsive, antisocial, impersonal, tough minded, and unempathetic. Thus, the self-concept is more unconsciously driven and full of negative life events experienced and reported in this study with strong affective associations. In addition, originality of self-concept scored high suggesting more unusual style of self and the influence of the power of negative life events and affect to push forth more exceptional creativity and effort (Simonton, 1980). It follows that regulated artistic and scientific curiosity has power to stimulate and to direct creative behavior for completion of creative projects (Kasden and Fincham (2002). Additionally, it must be noted that the flow experiences during the creative process are described as positive, intense, and enjoyable experiences that give happiness peaks to the most creative (Csikszentmihalyi, 1990, 1993, 1996; Henderson, 2004). These timeless moments of creative euphoria are the prize. Also, the originality findings in this study are further supported by the very robust studies on divergent thinking skills of originality with the more creative (Guilford, 1950, 1967).

At this point, the self-concept portrait of the highly creative is one comprised of dour negative affect fighting to create original work and savor the joy of creative flow without completely conforming to social norms, yet having to play the social chess game of acceptance. Thus, it is clear to see where extreme tension can be found in the working self-concept of exceptional creative types that have to continually regulate their highly volatile emotions. Also, the strong negative emotion significance found in this study

strongly supports the negative affect states found between an 'Ideal' and 'Ought' self schism (Strauman, 1996; Higgins, 1989; 1987). Further evidence for this self-concept tension is in George and Zhou's (2002) study that found negative moods foster more creativity due to tensions in status quo. Thereby, a powerful desire is formed within individuals to exert more effort to come up with truly new and useful ideas; especially, when subjects perceived less clarity and confidence of feelings. Whereas, positive and optimistic moods made their subjects produce less effort to be creative. Therefore, the exceptionally creative may have the ability to understand this tension build up and cope by self-regulating their cognitive executive processes and self-concept schemas in order to establish a hierarchy of self through prioritizing (Rosenberg, 1988; Rosenberg & Gara, 1985).

In the same vein of thought, the veracity of the psychodynamic self-concept profile and its relationship with creativity suggests that exceptional creative types can manipulate their minds through keen cognitive coping mechanisms in order to funnel negative energies into creative products and acts, acceptable outlets for negative emotions. Outstanding creative individuals have the ability to regulate the over-stimulation and psychotic dilemma of introversion with decreased latent inhibition by compartmentalizing and integrating hierarchical self-concept structures (Showers, Abramson, & Hogan, 1998). Recent research extends this natural, coping process into behavior therapy and clinical applications by promoting the efficacy of integrating positive and negative self-beliefs to balance overly negative self-views or reverting to a positive compartmentalization strategy to minimize access to negative self-beliefs (Showers, Limke, Zeigler-Hill, 2004; Showers, Abramson, & Hogan, 1998). Mental

discipline techniques can help to control, free up cognitive space, and rein in the over-stimulated and unbridled circular, free associative processes and distractions that can at times haunt or block product completion for the scientist or artist; thereby, igniting rumination. Very productive cognitively-focused creative individuals include Edison with 1,093 patents, Einstein with 248 publications, and Rembrandt with 650 paintings, 2,000 drawings, and 300 etchings (Simonton, 1999). Furthermore, it's possible that creative training programs could be enhanced by teaching individuals about the mechanics involved in hierarchical reorganization in self-concept knowledge structures.

In addition to the psychodynamic findings, further evidence was found in the cognitive problem-solving model. The category items variable suggesting more fluency in divergent thinking skills was found to be negative. This negative finding contradicts the Guilford (1950, 1967) work on creative types possessing fluency in divergent thinking ability. This suggests that the most creative performers did not list the most category items in their past/present self-concepts. But, it does stand to support the comparable finding that cognitive focus was positively significant to creative performance. Thus, Chase and Simon (1973) and DeGroot's (1966) work on master chess players highly supports our cognitive focus finding that emphasizes the importance of acquiring focused expertise in a domain or limited domains. Additional support for this finding found that positive mood produces more cognitive complexity and more interpretations when asked to categorize names of objects (Montgomery, Hodges, Kaufman, 2004; Isen & Daubman, 1985; Isen, Daubman, & Nowicki, 1987; Isen, Johnson, Mertz, & Robinson, 1985). In their study negative emotion or mood was most

prominent over positive mood for attaining higher creativity; therefore, less complexity was found.

Overall, the variables of conscientiousness, conformity, open-minded, original, negative emotion, cognitive focus, discrepancy, category items, clarity, and flexibility comprised a significant combination in predicting creativity. The significant cognitive problem-solving variable of category items with its negative relationship in combination with the strength of negative emotions found in the psychodynamic model discussed earlier are supported by Linville (1985, 1987). This study found that less complex, cognitive representations of the self will evidence more variances in affect and self-appraisals and be prone to depression and illness. In addition, the research on self-clarity (Baumgardner, 1990; Campbell, 1990; Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996) supports this finding that those with less self-clarity will experience more negative consequences such as low self-esteem, low agreeableness, neuroticism, and rumination (Showers & Zeigler-Hill, 2003).

For the past/present self-concept models, the most significant variables were original, negative emotion, cognitive focus, and category/fluency items (Guilford, 1967, 1975) of the psychodynamic and cognitive problem-solving models. With the robust finding on negative emotion, a primary-process thinking process, the working self-concept of the highly creative has to learn and find adaptive ways to funnel these emotions in appropriate ways in order to gain project approval and acceptance. It is further supported by Martindale (1999), Weisberg (1993), and Gedo (1989a, 1996, 1997) that found the highly creative are emotional, affectively sensitive, and enjoy novelty and mental stimulation. It's a bonus to have a creative edge due to immense practice and

cognitive focus; but another to be able to comprehend the possible residual groupthink phenomenon that can result when one becomes involved in a team or group that is too cohesive (Peters & Waterman, 1982; Mumford, Scott, & Gaddis, 2002). Specifically, one must be able to exercise and practice appropriate perspective-taking skills and forecast possible undesirable social consequences downstream that may affect external validity (Messick, 1995; APA Standards, 1999). Thus, it is imperative to suggest the importance of emphasizing cognitive planning strategies and outcomes for major creative acts (Mumford, Schultz, & Van Doorn, 2001).

For example on a macro level, artists are drawn to communities that support the arts; thus, "artist colonies" are formed and less self-concept regulation is needed; thereby, reducing tension and stress. Such is the same for scientists who have been able to obtain more autonomy through more efficient and productive laboratory teams (Mumford, Scott, & Gaddis, 2002). Therefore, more cognitive space is freed up for creative problem-solving towards project completions. The actively engaged self-concept is always working and reorganizing self-views in order to achieve and establish personal social fit within the environment and harmony within the community (Baumeister & Vohs, 2003). Though a group gains acceptance with their own cohort, there is potential to loose overall acceptance between and across other groups. Due to a lack of diversity, not only in people, but also in diversity of ideas and critical examinations of ideas of action may have unbalanced impacts once implemented. As suggested earlier, highly cohesive teams have been found to be less creative (Mumford, Scott, & Gaddis, 2002).

It is of note that the findings and evidence found in the past/present self-concept models should be viewed quite differently from the future findings. The future findings

are based on projected life events and not actual self-concept at the time of the study. It is a study on what might happen; therefore, it is a conceptualization of what course individuals hope their future will bring and what goals are important to them. It is a future self-concept influenced and based on a foundation of past/present events, both positive and negative. The subjects in this study had a mean age of 19 1/2 years; therefore, a larger landscape of possible future events could be mapped to. Also, it is possible that the temporal construal effects may change or undermine their responses when having to project what their future self-concepts may be like (Forster, Liberman, & Friedman, 2004). With these considerations in mind, several significant self-concept variables surfaced in the future self-concept combination including group-based, conscientiousness, conformity, social focus, original, negative emotion, detail-oriented, cognitive focus, discrepancy, complexity, clarity, and role models. All these variables accounted for a significant variance in creative performance with the most predictive positive relationships coming from detail-oriented, cognitive focus, and negative emotion. The complexity and group-based variables were negatively significant. The highly creative were optimistic and able to elaborate more on details, nuances, and simple pleasures desired in their future self-concept views. While being more detailed oriented on self-concept descriptions, subjects were able to maintain cognitive focus by presenting smaller category items that were principle-based. This cognitive focus significance translated into a desire for less complexity and less group-based activities. Therefore, the future self-concept desired and most predictive of creativity in this study was most centered on attaining goals for more cognitive problem-solving ability and less on social pursuits.

Further stepwise regression investigation into future self-concept and creativity performance revealed the four significant variables of group-based, detail-oriented, cognitive focus, and complexity. The large variance evidenced in the psychodynamic detail-oriented variable is supported by the working self-concept that is hierarchical and facilitates nurturance, attention to detail, exploration, and creativity (Showers & Zeigler-Hill, 2003). The psychodynamic negative emotion variable is only significant in the combination regression. Further support for this future detail-oriented self-concept is found by Ehrenzweig (1967, 1953, 1975) suggesting that the gestalt-free mode is at play here by detail perception. In addition, the cognitive problem-solving self-concept was again negatively related to complexity and positively related to negative emotion. This evidence in the future self-concept suggests support again for low self-complexity theory (Montgomery, Hodges, & Kaufman, 2004; Linville, 1985, 1987) and its connection with excessive affective associations. While focusing on this finding, a possible organizational application is to consider balancing the promotion of creative thinking and production within organizations with proactive agendas that include consulting sessions, behavior therapy, and physical tasks for relief of residual affective moods and states. In other words, to keep proactive creative production levels high, the high creative types need to learn non-drug based behavioral therapy techniques for coping with the strong negative emotions involved in their daily lives and work lives. Engaging in creative work or being exposed to more stressful life events can leave one prone to illness, anxiety, and depression. Compelling research by Showers, Limke, and Zeigler-Hill (2004) suggest that the use of cognitive therapy techniques through the application of either an efficient positive compartmentalization strategy or an integration of positive with negative self-

concept views can help to alleviate the unbalanced views of self found in rumination. Thereby, healthier mental habits of self-organization can be fostered and maintained through the use and adaptation of flexible self-structures (Showers, 1992a, 2000; Showers, Abramson, & Hogan, 1998; Showers & Zeigler-Hill, 2003).

Self-concept is a dynamic and evolving construct that acts and reacts to creative processes, product aesthetics, imaginative experiences of art (Vygotsky, 1971), individual differences, and social fit. Studies are just beginning to tap the dynamics involved in product invention and innovation, creative enjoyment, and concurrent affective components (Henderson, 2004). The aesthetic beauty and varied emotional reactions experienced with creative work can linger or shock and mentally transport images and feelings over time in day dreaming or during unconscious night journeys (Gedo, 1972, 1989a, 1993, 1996, 1997). The popularity and acceptance of an artist's art, engineer's machine, or scientist's model might be due to its underlying creative depth as well as initial intent, and symbolic design to express self-concept views such as religious canons, juxtapositions of familiar social issues, or environmental concerns. Thus, the powerful interplay of symbols and dynamic, mindful self-concepts of the artist and viewers are affected, consciously and unconsciously. Renown art and architecture historian, Vincent Scully, presents the power of aesthetics experienced by buildings, historic and modern, and their place within communities as the fabric that binds the past to the future (Beatty, 1995; Bender, 2003; Jarzombek, 1997). The point clearly is made of illiterate societies that must still rely on symbolic signs, architecture, and art for general understanding and order.

Culturally significant art and scientific innovations produce paradigm shifts (Kuhn, 1996) or breaks in conventional patterns and moving waves of change within and across disciplines. Creative leaders with their dynamic self-concepts can make significant social impacts and contributions to organizations and it's imperative that we continue to study creative thinking (Mumford, Connelly, & Gaddis, 2003). Through a case-based method, Mumford and Van Doorn (2001) show the creative genius and adaptable influence of Benjamin Franklin as a leader behind major social innovations such as the subscription library system and the establishment of the University of Pennsylvania with a diverse, nondenominational curriculum. On the other hand, it is important to note the dark side of destructive creative acts and abuse of creative symbolism to control by leaders like Hitler who was trained as an artist (Mumford, Gessner, Connelly, O'Connor, & Clifton, 1993) and Osama bin Laden with his use of the familiar religious archetype called "The Old Man of the Mountains" (Poland, 1988).

Productive organizational success, whether public or private, is determined by how creative business employees can be to maintain interest in their products or services for a competitive edge. Having a viable self-concept assessment tool to measure exceptionally creative individuals and those with potential to produce in an organization is vital to sustaining organizations (Mumford, 2003; Runco, 2003). Also, the exceptionally creative must find adaptive ways to create such as finding and working with partners, laboratory teams, or organizational associates who are agents more adept at social skills and self-regulation. These supportive agents help to balance the social anhedonia and introverted tendencies experienced by creative types in order for them to stay focused on their creative work. Most creative types say they need their "space" in

order to think, imagine, and create. Therefore, organizational creative space and environments need to be provided and matched to the self-concept needs of the exceptionally creative in career placement as suggested in work by Lubinski and Benhow (2000). This study combined the Theory of Work Adjustment (TWA) (Dawis & Lofquist, 1984), Radex Scaling of Cognitive Abilities (Spatial-Mechanical, Verbal-Linguistic, and Numerical-Quantitative) (Lubinski & Dawis, 1992; Snow and Lohman, 1989), and The RIASEC Hexagon (Holland, 1996) on realistic, investigative, artistic, social, enterprising, and conventional interests. And, organizational cultures and training programs need to accept, value, and become compatible with creative self-concepts in order to foster more creative thinking and innovative products (Mathisen & Einarsen, 2004; Mumford, Scott, & Gaddis, 2002). If social environments are not conducive to and accepting of specific creative work, psychological pain is experienced and personal self-concept views will be in discordance. Balancing this tension and cognitive dissonance is surmount for productivity by the highly creative with such suggestions as moves to communities that appreciate and acknowledge their work or career adjustments. Finding matches between personal skills, occupations, and environments is examined in detail in the occupational information system called O*NET by Peterson, N. G., Mumford, M.D., Borman, W. C., Jeanneret, P. R., & Fleishman, E. A, (1999).

Some further training applications for inducing more creative and imaginative thinking is to overarch the blending and sharing of ideas across the arts and sciences. Have the scientist and artist switch places between the laboratory and the studio in order to be actively immersed in another world for some time. Actually have the scientist pick up paint brushes and a palette knife and actively feel the sensations, aesthetics, smell and

visual excitement and joy of mixing oils into different dimensions of color. Have the scientist paint the conception of their ideas on a canvas to enhance their vision to see with a more "critical eye" for detail. On the other hand, have the artists go into the laboratory space and feel the euphoria of intellectual stimulation from brainstorming sessions with others and the discovery of simple, elegant experimental designs of significance. Thus, fostering fuller, empathetic personal self-concepts of creativity and self-competence such as that found in the research on drawing and mindful creativity (Grant, Langer, & Capodilupo, 2004). Furthermore, health benefits are plentiful as individuals can strengthen their hemispheric neurological balance with art, music, or science exploration and appreciation (Weinberger, 2004; Friedrich, 2004; Arnheim, 1986). Focus is on balancing the use of the brain to avoid burnout. It's possible that newer creative training techniques will help to enhance newer associations and better perspective taking that can lead to more metaphors and analogical combinations that can induce "mental leaps" and breakthrough knowledge (Holyoak & Thagard, 1995). Scott, Leritz, and Mumford (2004) provide an excellent quantitative review of the effectiveness of current creativity training.

Other possible research areas include study of the creative Muse with self-concept dynamics and competitive achievement self-concepts with cohorts. Though the Muses of the museum have been around for centuries, inspiration is now being considered a viable psychological construct for research (Thrash & Elliot, 2003). Does a Muse always inspire the birth of ideas and obsessions of the highly creative or vice versa? Innovative composer Claude Debussy, who was inspired by his immersion amongst a community of impressionistic painters and poets, produced compositions of harmony like *Reverie.* He

pushed to blend his psychodynamic processes of fantasy and dreams that he felt with the visual perception of colors and light radiating from the art of his time (Byrnside, 1980; Lockspeiser, 1962-1963). Goldman (1991) suggests Debussy composed against conventional form by directly accessing the unconscious mind through the act of remembering from past images drawn forth. The powerful collaborative and productive wave of the Impressionism era lends support to the "evolving systems" approach (Gruber, 1982; Gruber & Davis, 1988) that depicts an interaction or collectivist-type effect that can be emitted from the creator's domain or symbolic knowledge, personal purpose, and affective influences. Additionally, findings in this study suggest significant combinations of variables across all three models will effect strong influences upon creative acts. On the other hand, does a competitive colleague or mentor through heated debate raise the bar for the next best invention, theory, or masterpiece such as the dialogue between Huxley and Darwin (Irvine, 1955), Stravinsky and Diaghilev (Gardner, 1993), or J.R.R. Tolkien and C. S. Lewis? Or, do affective moods heighten sensory acuity about societal tensions and juxtapositions (good vs. evil; sacred vs. secular; tragedy vs. comedy); thus, enhancing creative ability to find original problem solutions that can exponentially change infrastructures or societies?

Humans are creative beings that desire to enhance our world and personal immortality; thereby, creative acts can help us transcend. It's possible that information age technology has subverted some insights of aesthetics and hands-on practice that build cognitive focus known to craftsmen and apprentices. Simonton (2003) presents a strong argument for identifying scientific creativity as a constrained stochastic behavior and integration of product, person, and process behaviors and James, Brodersen, and

Eisenberg (2004) suggest a model to induce creativity research on the workplace affect and creativity dilemma. The hope is that this investigation helps to further our understanding of self-concept influences on creativity through social/nonsocial traits, psychodynamic, and cognitive problem-solving theoretical models. Specifically, the notable variable combination of negative emotion and detail orientation combined with limited cognitive focus and social anhedonia suggests the need for developing better personnel assessment tools for tapping and hiring the individuals that fit this creative self-concept profile. Future research should attempt to fine-tune the predictive ability of the self-concept assessment tool used in this study to measure creative ability and potential. Work environments, educational institutions as well as communities need to provide all-inclusive creative space for emotive play to enhance gestalt-free detail perception and collaborative, collectivist group work. And, efforts should be made in organizations to design better predictive creative assessment tools and the incorporation of cognitive focus training (craftsmanship) through hands-on practice techniques to enhance creativity. Individuals struggling with attention deficit disorders could even benefit as well from newer cognitive focus methods to channel efforts towards enhanced creativity and more positive self-concepts. Educationally, more humanities-oriented coursework could be offered to blend the knowledge acquisition across the arts and sciences in order to develop more renaissance-style minds. The hope is to educate students to be better and deeper critical thinkers striving for mastery of knowledge and self-awareness through metaphorical and associative skills development. Furthermore, efforts should be made to alleviate undesirable affective residuals that result from individual introversion, cognitive focus frustrations, and intense creative work environments through application of new

self-concept cognitive behavioral techniques. Thus, attention of the highly creative can be channeled into exceptional creative acts, products, and performance.

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Instructions - Part 1

Different people have different sets of life experiences, which vary in content, number, and importance. This exercise is intended to get you to think about your own life and to represent or construct who you are on paper. A diverse set of life events are provided for you as a starting point. You may also add other experiences as needed to represent who you are. There are no "best" or "right" answers to this exercise.

Here's what to do:

Step 1: Read through the list of life events on page 2. Think about how these events could be sorted into categories to reflect who you are (past and current).

Step 2: Use the chart on page 3 to create category labels for each group of life events. Write the names of each category next to a letter in the chart. Each category should have its own letter.

Step 3: Sort the life events on page 2 into the categories you created. Place the appropriate letter of the category next to the life events that belong in that category.

- Use as many life events as you need to; you do not have to use the whole list.
- Sort as many events into a category as you need to; each should have at least 3.
- Use both positive and negative events since you have probably experienced both.
- Add new life events and sort into your categories if you think that something important is missing from the list (use the white space or back of the page).

Step 4: Rate the importance of each category using the rating scale provided on page 3. Circle the appropriate number (1=of minor importance to 5=extremely important).

Step 5: Indicate which events are most important in each category by circling the letter next to them (page 2).

Figure 1. Instructions for Self -concept measure for Past/Present.

EVENTS LIST - PAST/CURRENT LIFE

_____A major health concern
_____Acceptance into college
_____Acceptance into professional school
_____Adopting a child
_____Assuming responsibility for care of parents
_____Becoming a grandparent
_____Being a foster parent
_____Changing jobs
_____Child has significant health problems
_____Child has significant success
_____Child(ren) move out of house
_____College awards
_____Completing a college degree
_____Completing a graduate/professional degree
_____Death of a friend
_____Declining health with age
_____Declining sensory competence
_____Declining social contact
_____Discovering a fulfilling hobby
_____Discovering cultural roots
_____Discovery of chronic health concerns
_____Divorce/Marital separation
_____Doctors visits as part of daily/weekly routine
_____Early retirement
_____Ending of a friendship
_____Engagement
_____Entry into the "working world"
_____Falling in love
_____Family death
_____Family move out of state/region
_____Fertility problems
_____Financing a child's education
_____Finding a new friend
_____Firing an employee
_____First living on own
_____First serious relationship
_____First significant leadership role
_____First significant Management position
_____Friend death
_____Gaining friends
_____General loan/School loan
_____Getting demoted
_____Getting fired/laid off
_____Getting into debt (can't meet obligations)
_____Getting involved in a cause/charity
_____Getting promoted
_____Giving a child up for adoption
_____Having a business fail
_____Having a child
_____Having a job you hate
_____Having a job you love
_____Having a new brother/sister
_____Having an important teacher/mentor
_____Having mental health problems
_____Having your children take care of you
_____High profile job
_____High school awards
_____High school graduation
_____Job transfer
_____Joining armed forces
_____Law enforcement encounter
_____Living outside country of origin
_____Long distance relationships/marriage
_____Losing significant financial support
_____Loss of independence with age
_____Love relationship ends
_____Low/Failing grades
_____Lying about an important issue
_____Making a financial investment
_____Marital infidelity
_____Marriage
_____Moving back to parent's home
_____Moving out of parent's home
_____Overcoming addiction/habit (e.g.smoking)
_____Parent(s) have significant health problems
_____Parents get divorced
_____Parents remarriage
_____Paying off debt
_____Rejected from college
_____Rejected from job
_____Relationship infidelity
_____Religious rights of passage
_____Responsibility of caring for a house
_____Retirement at typical age
_____Serving a significant role in community
_____Significant career achievement
_____Significant career recognition
_____Significant conflict with boss/teacher
_____Significant conflict with parents
_____Significant involvement in political system
_____Significant religious experience
_____Significant role in religious institution
_____Significant travel experience
_____Spouse changing jobs/career
_____Spouse death
_____ Spouse/family has health concerns
_____Starting your own business
_____Taking a stand for something you believe
_____Taking medication as part of daily routine

Figure 1. (Continued) Self-concept measure of 99 Significant Life events.

Exercise 1: Starting Your Own Business

You have just inherited a commercial building located in a mid-sized town about 15 minutes away from a large city. Recently, you have noticed a real need for a place for people to go to have a good time. There are only a few such businesses in the smaller town. The building is fairly large (about the size of a Target store) so you have plenty of options of what type of business to chose to put in it.

Financial Considerations

- A close friend of the family has offered to go into business with you and could assist in financing.
- You have looked into getting a loan with a bank (at a moderate rate of interest).
- A more original business might entail more risk.
- Competition is more intense for a typical business and so you might have to wait longer to see a profit.

Possible Target Populations

Chose from the following customer populations to target your business.

- There is a fair-sized group of professional young couples who have preschool-age children. They are looking for a place that could entertain their children and be educational at the same time.
- There is a large population of teenagers who would like to be able to socialize without their parents at fairly low cost to them. However, their parents are concerned about the safety of the establishment
- There is a large, diverse, college-age population who are always looking for entertainment and feel there is very little to do entertainment-wise in the area.
- There is a small population of high-income, professional, working adults who are also looking to get away from work and/or to meet others.
- There is a large group of older, retired adults. They have plenty of free time and want to socialize and meet others.

1). Briefly describe your business. What name would you give it and what kind of entertainment would be providing? What will be your business's major characteristics?

2). What are your goals? Why do you think that this business will be successful?

3). How will you differentiate your business from your competitors? Describe how you will advertise to reach your customers.

4). Where do you see your business a year from now? Five years from now? What changes do you anticipate having to make over time?

Figure 2. Entrepreneurial creativity measure.

Exercise 2: Organizational Change and Development

You are the CEO of a car manufacturing company. Established over 50 years ago, your company developed the first official "sports car" model in the United States. For years, your company had thrived at being the top sports car manufacturing company in the nation, if not the world. Your showcase car model, called the Divinchi, earned a reputation as being owned by high-class people who also were a little rebellious. This reputation helped to make the Divinchi the top selling sports car for many years and an icon of wealth and prosperity, with a powerful motor and sleek design. Other factors included the strong dealership network and exporting your product to other countries. Both customers and the dealers who sold your product have shown high loyalty to the Divinchi brand name since your company is the sole car manufacturing company that sells this kind of car in your country and has made many innovations in car manufacturing.

In the last decade, your company has drastically declined. Major problems in the quality of your product have caused a loss in both dealers and customers who became frustrated with the constant repairs needed just to make the Divinchi run. Product improvements have declined. Your company is not selling enough to cover costs and is approaching bankruptcy.

1. List the goals for your company. Circle the three goals that you consider to be the most important. What makes these goals so important to the company?

2. What immediate steps do you take to save your business?

3. What long term plans would you make to turn things around?

4. What steps would you take to change your tarnished reputation?

5. How can you ensure these changes are made?

6. What backup plans do you think would be important to have? When do you think these backup plans might be used?

Figure 3. Creative consulting exercise.

Exercise 3: Marketing

This exercise is designed to assess how people go about formulating and solving marketing problems. During this study, you will play the role of a University of Oklahoma undergraduate who has just been hired to work part-time as a student intern for Henderson & Co., a national marketing consulting firm. This exercise is designed to simulate what a marketing intern might do on the first day of the job. During the simulation, you will play the role of a marketing intern who, has just been assigned to a new position.

Aside from your new position as an intern, retain your actual identity and be yourself during this exercise. This exercise can take over one hour to complete.

You will be asked to create and describe in detail, a magazine advertisement for a new product, a 3-D holographic television.

Please keep the following in mind as you do this exercise:
- Familiarize yourself with the product information and use it in making your decisions.
- Give as much detail as you feel is needed to understand the advertisement.
- The exercise will take a little over 20 minutes to complete.

Please turn the page and begin.

Henderson & Co.
Consumer Electronics Division - New Products Department

NEW PRODUCT INTRODUCTION

New Product: 3-D Holographic TV

Firm: Zenith

Product Description:

One of our clients, Zenith, has developed and patented a three dimensional holographic television. Using the latest in computer and laser technology, this brand new home entertainment system takes a standard 2 dimensional TV or videotape signal and recreated it into a 3 dimensional image, a hologram.

The computer technology was developed from research with high-density televisions. Unlike high-density televisions, however, the computer in the 3-D holographic TV generates the normally untelevised third dimension using known objects in its extensive memory. All three dimensions are then combined and projected using lasers and mirrors.

As illustrated by the enclosed sketch of the product, the 3-D holographic image is projected to an area on top of the set. This 3-D projection allows the created image to be viewed from all angles (front, back, and sides). For example, the enclosed illustration of the car scene is viewed from the front of the set. From this angle, the care appears to be travelling towards you. It will appear to be traveling away from you, however, if you were viewing the car scene from the rear of the set.

Other features:
- Uses standard household current
- High quality computer processor (Intel PentiumV© 1133MHz)
- Extended memory of known objects
- State of the art software
- Computer interface for custom holographic design
- Reasonable image quality
- Large image size (24" high, 24" wide, and 18" deep)
- Easy to operate controls
- High fidelity sound (5 speakers, with subwoofer and amplifier; THX Surround EX™ surround sound system)
- Wireless remote

Figure 4. Marketing and advertising creative exercise.

BACKGROUND INFORMATION

Production Schedule:

Zenith currently has a working prototype of the 3-D holographic television built, and will be introducing it into the marketplace in 90 days.

Retail Price:

The manufacturer's suggested retail price per unit is estimated to be $3,000 - $4,000 for the first 10,000 units produced. As more units are produced, however, the average manufacturing cost per unit is projected to curve downward (production experience curve). This projected decline in manufacturing costs will enable Zenith to lower their suggested retail price per unit as follows:

RETAIL PRICING CURVE

Number of Units Produced	Manufacturer's Suggested Retail Price (per unit)
1 - 10,000	$3,000 - $4,000
10,000 - 100,000	$2,500 - $3,000
100,000 - 1,000,000	$2,000 - $2,500
1,000,000 - 10,000,000	$1,500 - $2,000
10,000,000 - and up	$1,000 - $1,500

Competition:

RCA and Sony are also planning to produce 3-D holographic televisions. RCA is projected to introduce their first units in one year. However, due to increased development time, it will take Sony two years to introduce their first units.

The manufacturer's suggested retail price is expected to be similar for each of the three companies.

Note: The preceding product description, background information, and task description should provide you with all the information necessary to solve this marketing problem.

Figure 4. (Continued)

Originality Scale

Scenario 1: Creativity/Entrepreneurship

Subject's Instructions

Given the scenario of "Starting Your Own Business:"

1) Describe your business. Name it. Describe what entertainment it would provide. Describe major characteristics.
2) List your goals. Tell the likelihood of success.
3) Describe how you would differentiate your business. Describe advertising plan.
4) Predict where the business is in a year and five years. Predict the changes you will have to make.

Originality Considerations

The subject's answers should be evaluated (rated on a scale from 1 to 5) using the following dimensions:

Unexpected – Did they approach the problem in a novel, imaginative, unpredictable, or innovative manner?
Descriptive – Did they expand upon an idea or tell a story to help the reader visualize plan?
Newness – Did they go beyond the stimulus materials provided to include additional material and experiences?

(1) Very predictable answer, business is prevalent. Plan is described in basic terms without elaboration. Business plan uses just the stimulus materials provided.

"The company name is 'Starks'. It is a dance room, three bars, pool tables, dart boards…goal is to make money and give college students a place to relax…[advertise] on billboards, website, and rapid advertisement…Future will be successful.

(2) The market for their business may be saturated, but not obviously so. Business plan includes a very basic piece of information not provided in the material, perhaps used to illustrate a single aspect of the plan.

(3) Business would be comparable to some existing businesses, but its market is not completely saturated; the business would have added value. A simple example is used to illustrate the essentials of the plan. The subject may use new information, but information seems general, not specific to the subject.

"This business would be a paintball business…for mostly young adults…for people who like adrenaline rushes…could sell equipment as well as renting…goals to provide quality entertainment…for extreme sports…paintball is one of the fastest growing sports…and from the size of the town it sounds as if there would be a lot of customers…the town probably doesn't have any competitors…I would hold a tournament and give away prizes…on the opening weekend…In five years I would hope to expand…outdoors…and have to buy new equipment

(4) Business has a 'twist,' something that makes it different, but builds upon a typical business foundation. Plan has a few examples to illustrate a couple of aspects of the plan or to answer questions, but the description is not complete. Subject includes information that is not in the materials, but does not go far beyond it (simple elaboration).

(5) Business has aspects that make it unique or reaches a market that has not been tapped in the same manner very often. Uses examples to illustrate the majority of the plan and to answer questions. Subject includes a large amount of information that is unique to him/her.

"…I would look into an arts and crafts workshop (for preschool age children and parents)…call is something like 'Aunt Jennie's Crafts' which suggests a more personal relationship with clients…instructors encouraged to be friendly…offer a variety of crafts for children and parents…entire store family oriented…goals are to help others and encourage artistic abilities along with offering fun, inexpensive activity with flexible hours for parents who work…while making a profit…will succeed because there aren't too many arts and crafts workshops…with big building could also have art supply store…TV and newspaper ads…this will be a risky venture, so if I am in business in five years I will have to accommodate new and changing art forms.

Figure 5. Example of Benchmark rating scale for originality.

Table 1
Proposed Social/Nonsocial Model Expectations before Pilot study

	Expectations for Highly Creative types	**Self-concept Influences**	**How it will be scored**	**Rating Scale (if applicable)**
1	Less interpersonal affect or social anhedonia	Fewer group-based categories and items listed	Rate how few group-based categories are listed	1-low group-based items 2-medium low 3-medium 4-medium high 5-high group-based items
2	Less interest in social/cultural issues	Fewer broader social categories	Rate how few broader social categories	1-low social interest 2-medium low 3-medium social interest 4-medium high 5-high social interest
3	Work orientation	Larger number of work categories indicated vs. family	Count # of categories	
4	Conscientiousness and responsibility	Frequency of responsibility items	Count # of responsibility items	
5	More independence	Fewer interpersonal reaction and interdependence	Rate how independent with few categories of interpersonal content	1-low 2-medium low 3-medium 4-medium high 5-high
6	Achievement oriented	More competitive self and achievement items	Count # of achievement items	
7	Socially atypical, nonconformists	Present and future atypical categories	Rate how atypical, nonconformist present and future categories are based on benchmark examples of conforming average types	1-low conformity 2-medium low 3-medium 4-medium high 5-high conformity
8	Persistence and curiosity on limited domains	Limited and focused categories of self that are stable	Rate whether they repeat a limited set of categories across present and future	1-unlimited, unfocused categories 2-medium low unfocused 3-medium 4-medium high focus 5- limited, focused categories
9	Internal locus of control vs. external	Self described as proactive causal agent	Count # of proactive self vs. passive self ("I can" statements)	
10	Wider range of life experiences	Self categories include higher quantity of life event items	Count # of diverse life experiences (death, marriage, etc.)	
11	Performance oriented	Self is goal directed through planning items	Rate planning, goal-directed, performance oriented items	1-low 2-medium low 3-medium 4-medium high 5-high

Table 1 (continued)
Proposed Social/Nonsocial Model Expectations before Pilot study

12	Seeking mental stimulation	Self is comfortable with solitary activities (e.g. seeking education, reading books) vs. group activities	Rate how many solitary activities overall listed	1-low solitude, more social, group-based 2-medium low 3-medium 4-medium high 5-high solitude

Table 2
Proposed Psychodynamic Model Expectations before Pilot Study

	Expectations for Highly Creative types	**Self-concept Influences**	**How it will be scored**	**Rating Scale (if applicable)**
1	More risk takers	Self descriptors are atypical, aggressive, and bizarre	Raters to rate how overall bizarre, risky, and aggressive items tend to be	1-low risk taker 2-medium low 3-medium risk taker 4-medium high 5-high risk taker
2	More deviant than norm	Self is described by more associational, discordant self categories	Raters to rate how deviant from norm categories are based on benchmark norm examples	1-low deviance from norm 2-medium low 3-medium 4-medium high 5-high deviance from norm
3	More open-minded, especially to new concepts	More open-ended self content categories; less tight boundaries	Raters to rate how open-minded categories are overall; such as adventurous, wanting to discover the world.	1-low open minded 2-medium low 3-medium open minded 4-medium high 5-high open minded
4	Psychotic tendencies are present	Self is described by more free associative, analogical, dream-like categories and items	Raters to rate how "dreamy" items seem to be overall suggesting more free association and analogical thought processes.	1-low associative items 2-medium low 3-medium 4-medium high 5-high associative items
5	More associational, affective systems displayed	Self is described in unorganized fashion with emotional words; defocused attention	Raters to rate how much use of emotional categories and items are overall	1-low emotional 2-medium low 3-medium emotional 4-medium high 5-high emotional
6	More imaginative and perceptual	Self is described by descriptive, colorful content categories; reports of fantasies and desire for novelty	Raters to rate how colorful and descriptive, story like, imaginative, and novel items tend to be	1-low imagination 2-medium low 3-medium imagination 4-medium high 5-high imagination
7	More unusual and original suggesting neurotic behavior	Self is described by more original category labels	Raters to rate as post-hoc analysis to compare with the "average" or norm of entire sample; use of norm benchmark scale	1-low originality compared to norm 2-medium low 3-medium 4-medium high 5-high originality compared to norm
8	More negative affect displayed to current life, but less to future life	Self is described by large number of emotionally laden self categories in current life, versus future life.	Raters to rate how emotionally descriptive, affective items are compared to future items	1-low affect 2-medium low 3-medium 4-medium high 5-high affect

Table 2 (continued)
Proposed Psychodynamic Model Expectations before Pilot Study

9	More rebellious and desire/need for change	Self categories indicate negativism, pessimism in present and optimism in future.	Raters to rate how pessimistic and negatively items are described in present life versus being more optimistic for future life	1-low pessimism 2-medium low 3-medium 4-medium high 5-high pessimism
10	More sensitive and withdrawn	Self description indicates more solitary tendencies	Count # of solitary, withdrawn activities listed	
11	More tendency to overreact	Self categories indicate overstatements, excessive elaborating; tendency to exaggerate	Raters to rate how statements tend to appear excessive exaggerations	1-low exaggeration 2-medium low 3-medium 4-medium high 5-high exaggeration
12	More tendency to pay attention to details	Self items include nuances of everyday life; noticing the simple pleasures	Raters to rate how categories tend to emphasize details	1-low detail-oriented 2-medium low 3-medium 4-medium high 5-high detail-oriented

Table 3
Proposed Cognitive Problem-solving Model Expectations before Pilot Study

	Expectations for Highly Creative types	**Self-concept Influences**	**How it will be scored**	**Rating Scale (if applicable)**
1	Possess expertise in domain or limited domains	Self composed of limited range of categories that are principle-based (mainly work, family, or leisure domains)	Raters to rate whether overall self is described by a consistent and focused small number of domains versus unfocused, unlimited listing of domains	1-very limited, focused domains 2-medium low 3-medium focus 4-medium high 5-very unlimited amount of domains listed, less focus
2	More problem-identification and finding skills	Self includes a larger number of categories that mark problems to be addressed and solved	Raters to rate overall problem solving ability	1-low amount of problems identified 2-medium low 3-medium 4-medium high 5-high amount of problems identified
3	More integration of anomalous elements (deviating from norm)	Self is presented as highly discrepant models, especially in future	Raters to rate discrepancy found between present and future categories	1-low discrepancy from norm 2-medium low 3-medium discrepancy 4-medium high 5-high discrepancy from norm
4	Uses more elaborate processing more often in problem solving	Self identified by elaboration on salient categories such as work	Raters to rate whether individuals exhibit more items suggesting elaborations about problems	1-low problem solving elaboration 2-medium low 3-medium elaboration 4-medium high 5-high problem solving elaboration
5	Use of more discrepant combination heuristics in creating novel ideas	Self includes unusual combinations and discrepant categories	Raters to rate whether categories combine discrepant ideas	1-low combination, discrepant categories 2-medium low 3-medium 4-medium high 5-high combination, discrepant categories
6	More divergent thinking skills displayed	Self identified with a large number of items within a limited set of categories	Count # of items listed under categories for averages	
7	Show more complexity of self-knowledge	Self categories show complex linkages across and within; variety and amount of self-knowledge	Raters to rate how complex self knowledge structures are	1-low complexity 2-medium low 3-medium 4-medium high 5-high complexity

Table 3 (continued)
Proposed Cognitive Problem-solving Model Expectations before Pilot Study

8	Better planners	Coherence and clarity integration of knowledge structures in categories; possible downstream consequences such as career and goal blockages	Rate how well items fit together with each other and show possible consequences of actions	1-low clarity and coherence 2-medium low 3-medium clarity and coherence 4-medium high 5-high clarity and coherence
9	More flexible and can reorganize knowledge through combinations	Self is described in the rephrasing and integration of categories from present to future	Count # of events and # of categories that are added and subtracted from present to future	
10	Use of more role models	Self categories will indicate use of more diverse and unusual models as well as combinations of models	Raters to rate whether self is described in comparison to role models	1-low use of role models 2-medium low 3-medium use of role models 4-medium high 5-high use of role models

Table 4: Rater Reliabilities for Self-concept Models

Study A: Social/Non-Social Model

Past/Present Constructs	Reliability (coefficient alpha)
Group-based categories	.65
Social Interest	.67
Conscientiousness	.58
Independence	.70
Conformity	.66
Focus	.57
Goal/ Planning orientation	.65
Solitude	.62
Future Constructs	**Reliability (coefficient alpha)**
Group-based categories	.57
Social Interest	.61
Conscientiousness	.55
Independence	.73
Conformity	.63
Focus	.60
Goal/ Planning orientation	.57
Solitude	.57

Table 4 (Continued): Rater Reliabilities for Self-concept Models

Study B: Psychodynamic Model

Past/Present Constructs	Reliability (coefficient alpha)
Risk-taker	.61
Deviance	.59
Open-minded	.58
Dream-like	.58
Emotional (unorganized)	.59
Imagination (colorful)	.63
Original (unusual)	.62
Negative emotion	.58
Pessimism (rebellious)	.60
Exaggeration	.61
Detail-oriented	.61
Future Constructs	**Reliability (coefficient alpha)**
Risk-taker	.52
Deviance	.61
Open-minded	.57
Dream-like	.50
Emotional (unorganized)	.56
Imagination (colorful)	.53
Original (unusual)	.53
Negative emotion	.60
Pessimism (rebellious)	.60
Exaggeration	.61
Detail oriented	.56

Table 4 (Continued): Rater Reliabilities for Self-concept Models

Study C: Cognitive Problem-solving Model

Past/Present Constructs	Reliability (coefficient alpha)
Limited and Focused	.54
Problems Identified	.55
Discrepancy (between past/ future categories)	.63
Elaboration	.58
Unusual combinations	.48
Category items listed	.66
Complexity (of categories)	.51
Clarity and coherence	.56
Flexibility, integration	.65
Role Models	.56

Future Constructs	Reliability (coefficient alpha)
Limited and Focused	.59
Problems Identified	.56
Discrepancy (between past/ future categories)	.64
Elaboration	.56
Unusual combinations	.50
Category items listed	.76
Complexity (of categories)	.56
Clarity and coherence	.59
Flexibility, integration	.61
Role Models	.62

Table 5

Self-concept Definitions

Social/Nonsocial Model	Definitions
Meta-theoretical creativity comes out of personality & social environments and results in motivation and willingness to engage in creative acts.	
1. Group-based	Self-concept with less interpersonal affect or social anhedonia suggested by fewer group-based categories and items. (e.g. team activities, athletic games, religious activities).
2. Social Interest	Self-concept with less interest in social/cultural issues suggested by fewer broader social categories. (e.g. clubs listed, art/cultural events, athletic organizations).
3. Conscientiousness	Self-concept that is more responsible suggested by frequency and larger counts of responsibility and conscientiousness items. (e.g. helping others, volunteering, discipline, careful, well organized).
4. Independence	Self-concept that is more independent suggested by fewer categories of interpersonal content. (e.g. work alone, less friendship based activities).
5. Conformity	Self-concept that is conforming to basic life roles of family, work, religious values, etc. versus being atypical and socially nonconforming.
6. Social focus	Self-concept is persistent and curious on limited domains that are focused suggesting a stable self versus unstable with unlimited, unfocused categories.
7. Goal/Planning	Self-concept is performance and goal oriented. The self is goal directed through planning items.
8. Solitude	Self-concept that is more comfortable with solitary activities seeking mental stimulation (e.g. seeking education, reading books) versus group and social activities.

Table 6

Self-concept Definitions

Psychodynamic Model	Definitions
Creativity can come from random associations made from affective associations, psychotic behavior, and sensitivity. Creativity and theoretical insights come from the ability to engage more readily in primary process cognition that is uncontrolled.	
1. Risk Taker	Self-concept is more atypical, aggressive, and bizarre.
2. Deviance	Self-concept is decribed by more deviant from norm indicating more discordance, associational, and disagreement between self categories.
3. Open-minded	Self-concept is more open-minded especially to new concepts with less tight boundaries. (e.g. adventurous, wanting to discover the world).
4. Dream-like	Self-concept is more dreamy suggesting more free association and analogical thought processes with more psychotic tendencies present.
5. Emotional	Self-concept is described in organized fashion with emotional words and defocused attention suggesting more associational, affective systems displayed.
6. Imagination	Self-concept is more imaginative and perceptual and described by descriptive stories, colorful content categories such as reports of fantasies and desire for novelty.
7. Original	Self-concept is more described by unusual and original categories compared to the norm suggesting neurotic behavior.
8. Negative Emotion	Self-concept is described by more negative affect and emotionally laden descriptives in the current life, versus future life.

Table 6 (continued)

Self-concept Definitions

9. Pessimism	Self-concept is more rebellious and desires or needs change. Self is negative in the present and optimism in future.
10. Exaggeration	Self-concept is described by overstatements, excessive elaborating; tendency to exaggerate and more tendency to overreact.
11. Detail-oriented	Self-concept has more tendency to pay attention to details that include nuances of everyday life by noticing the simple pleasures.

Table 7

Self-concept Definitions

Cognitive Problem-solving Model	Definitions
The creative self is composed of elaborate processing abilities drawn from focused expertise in a domain or limited domains. Problem identification and finding skills are more perfected and can be combined in original ways; thereby, contributing to increased creativity and development of innovations.	
1. Cognitive Focus	Self-concept is composed of a limited range of categories that are principle-based such as work, family, or leisure domains. Limited focus suggests expertise in few domains.
2. Problems Identified	Self-concept includes more problem solving ability through problem-identification and finding skills described by categories that mark problems to be addressed and solved.
3. Discrepancy	Self-concept is presented as highly discrepant models, especially in future by more integration of anomalous elements that deviate from the norm.
4. Elaboration	Self-concept is identified by elaboration on salient categories such as work suggesting more use of elaborate processing in problem solving.
5. Unusual combinations	Self-concept is described by unusual combinations and use of more discrepant combination heuristics in creating novel ideas.
6. Category items (fluency)	Self-concept is identified with a large number of items listed within a limited set of categories suggesting more divergent thinking skills displayed.
7. Complexity	Self-concept is described as showing complex linkages across and within suggesting variety and amount of self-knowledge is more complex.

Table 7 (continued)

Self-concept Definitions

8. Clarity and coherence	Self-concept is described by coherence and clarity integration of knowledge structures in categories suggesting better planning skills. (e.g. ability to show possible downstream consequences such as career and goal blockages).
9. Flexibility and integration	Self-concept is described in the rephrasing and integration of categories from present to future suggesting more flexibility and to reorganize knowledge through combinations.
10. Role Models	Self-concept is described by use of role models in categories indicating comparisons through use of more diverse as well as combinations of role models. (e.g. persons admired like father, boss, mother, religious leader).

Table 8
Social/Nonsocial Self-concept Rating Scale

Ratings - Section A: **SUBJECT Number: PAST #_____**
Raters Initials:_____

			Instructions:	**(Please circle one best judgment where indicated or list number of items counted)**
1			Rate how few group-based categories and items are listed (e.g. team activities, athletic games, religious activities)	1-low group-based items 2-medium low 3-medium group-based 4-medium high 5-high group-based items
2			Rate how few broader social or cultural categories are listed. (e.g. clubs listed, art/cultural events, athletic organizations)	1-low social interest 2-medium low 3-medium social interest 4-medium high 5-high social interest
3			Count # of responsibility and conscientiousness items (e.g. helping others, volunteering, discipline, careful, well organized)	Items counted = _____
4			Rate how independent subject seems with fewer categories of interpersonal content (e.g. works alone, less friendship based activities)	1-low independence 2-medium low 3-medium independence 4-medium high 5-high independence
5			Rate how atypical, nonconformist categories are listed versus conforming average types (e.g. Conforming types indicate basic life roles of family, work, religious values, etc.)	1-low conformity 2-medium low 3-medium conformity 4-medium high 5-high conformity
6			Rate whether they have a few or limited set of categories listed versus many categories	1-unlimited, unfocused categories 2-medium low unfocused 3-medium 4-medium high focus 5- limited, focused categories
7			Rate planning, goal-directed, performance oriented items	1-low planning, goal-orientation 2-medium low 3-medium planning, goal-orientation 4-medium high 5-high planning, goal-orientation
8			Rate how many solitary activities are listed versus more social activities (e.g. reading books, seeking education)	1-low solitude indicated 2-medium low 3-medium solitude 4-medium high 5-high solitude indicated

Table 9
Psychodynamic Self-concept Rating Scale

Ratings - Section B: **SUBJECT Number: PAST #_____**
Raters Initials: _____

			Instructions:	**(Please circle one best judgment where indicated or list number of items counted)**
1			Raters to rate how overall bizarre, risky, and aggressive items tend to be	1-low risk taker 2-medium low 3-medium risk taker 4-medium high 5-high risk taker
2			Raters to rate how deviant from norm categories indicating discordance and disagreement between categories	1-low deviance 2-medium low 3-medium deviance 4-medium high 5-high deviance
3			Raters to rate how open-minded categories are overall (e.g. such as adventurous, wanting to discover the world)	1-low open minded 2-medium low 3-medium open minded 4-medium high 5-high open minded
4			Raters to rate how "dreamy" items seem to be overall suggesting more free association and analogical thought processes.	1-low dream-like items 2-medium low 3-medium dream-like 4-medium high 5-high dream-like items
5			Raters to rate how much use of emotional, unorganized, and defocused categories and items are overall	1-low emotion, organized 2-medium low 3-medium emotion, unorganized 4-medium high 5-high emotional, unorganized
6			Raters to rate how colorful and descriptive, story-like, imaginative, and novel items tend to be	1-low imagination 2-medium low 3-medium imagination 4-medium high 5-high imagination
7			Raters to rate how unusual and original categories are	1-low unusual, unoriginal 2-medium low 3-medium unusual, original 4-medium high 5-high unusual, very original
8			Raters to rate how negative and emotionally laden items are	1-low negative emotion 2-medium low 3-medium negative emotion 4-medium high 5-high negative emotion

Table 9 (continued)
Psychodynamic Self-concept Rating Scale

9			Raters to rate how pessimistic, rebellious, and negatively items are described	1-low pessimism 2-medium low 3-medium 4-medium high 5-high pessimism
10			Raters to rate how statements tend to appear as excessive exaggerations, overstatements, and overreactions.	1-low exaggeration 2-medium low 3-medium exaggeration 4-medium high 5-high exaggeration
11			Raters to rate how categories tend to emphasize details such as attention to simple pleasures and nuances of everyday life.	1-low detail-oriented 2-medium low 3-medium 4-medium high 5-high detail-oriented

Table 10
Cognitive Problem-solving Self-concept Rating Scale

Ratings - Section C: **SUBJECT Number: PAST #_____**

Raters Initials:_____

			Instructions:	**(Please circle one best judgment where indicated or list number of items counted)**
1			Raters to rate whether there is a consistent and focused small number of categories that are principle-based (e.g. work, family, or leisure domains) versus unfocused, unlimited listing of categories	1- very unlimited amount of domains listed, less focus 2-medium low 3-medium focus 4-medium high 5- very limited, focused
2			Raters to rate overall problem solving ability shown in a larger number of categories that mark problems to be addressed and solved	1-low amount of problems identified 2-medium low 3-medium 4-medium high 5-high amount of problems identified
3			Raters to rate discrepancy found between present and future categories suggesting irregular and disagreeing categories. Look at both the current and future categories for the subject and compare for differences.	1-low difference between current and future. 2-medium low 3-medium difference 4-medium high 5-high difference between current and future.
4			Raters to rate whether individuals exhibit more items suggesting elaborations about problems (e.g. many items elaborated on a work category)	1-low problem solving elaboration 2-medium low 3-medium elaboration 4-medium high 5-high problem solving elaboration
5			Raters to rate whether categories have unusual combinations or combine discrepant ideas	1-low combination, discrepant categories 2-medium low 3-medium 4-medium high 5-high combination, discrepant categories
6			Look at the items listed under categories and count the # of items listed under categories and list the average	Items counted and averaged = _____
7			Raters to rate how complexity of categories by the complex linkages across and within categories.	1-low complexity 2-medium low 3-medium 4-medium high 5-high complexity
8			Rate how well items fit together with each other (clarity) and show possible consequences of actions (e.g. career and goal blockages) and better planning.	1-low clarity and coherence 2-medium low 3-medium clarity and coherence 4-medium high 5-high clarity and coherence

Table 10 (continued)
Cognitive Problem-solving Self-concept Rating Scale

9			Raters to rate flexibility by the rephrasing and integration of categories from present to future. Count # of events and # of categories that are added and subtracted from present to future	1- low flexibility, integration 1- medium low flexibility, integration 2- medium 3- medium high 4- high flexibility, integration
10			Raters to rate whether self is described in comparison to role models (e.g. persons admired like father, boss, mother, religious leader)	1-low use of role models 2-medium low 3-medium use of role models 4-medium high 5-high use of role models

Table 11
Means, Standard Deviations, and Intercorrelations for PAST/PRESENT Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N=103)	M	SD	1	2	3	4	5	6	7	8
1. Group-based	3.06	.97	--	.864***	.521***	.209*	.718***	-.236*	.464***	.292**
2. Social Interest	3.10	1.03		--	.464***	.138	.655***	-.274**	.493***	.303**
3. Conscientious	4.58	3.21			--	.23*	.638***	-.325***	.42***	.401***
4. Independence	2.77	.67				--	.38***	-.059	.442***	.258**
5. Conformity	3.17	.69					--	-.211*	.541***	.274**
6. Social Focus	3.24	.63						--	-.269**	-.171
7. Goal/Planning	3.24	.73							--	.557***
8. Solitude	2.58	.66								--
9. Risk Taker	2.66	.77								
10. Deviance	2.25	.68								
11. Open-minded	2.64	.76								
12. Dream-like	2.65	.71								
13. Emotional (unorganized)	2.52	.78								
14. Imagination	2.55	.77								
15. Original	2.52	.87								
16. Negative Emotion	2.29	.60								
17. Pessimism	2.05	.55								
18. Exaggeration	2.14	.77								
19. Detail-oriented	2.38	.72								
20. Focus (limited)	3.01	1.02								
21. Problems Identified	3.03	.84								
22. Discrepancy	3.40	1.11								
23. Elaboration	2.66	.92								
24. Unusual Combinations	2.47	.66								
25. Category Items (Fluency)	10.83	7.17								
26. Complexity	2.66	.65								
27. Clarity and Coherence	3.11	.68								
28. Flexibility, integration	3.42	1.06								
29. Role Models	2.26	.89								

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 11 (continued)
Means, Standard Deviations, and Intercorrelations for PAST/PRESENT Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N=103)	M	SD	9	10	11	12	13	14	15	16
1. Group-based	3.06	.97	.43***	.264**	.299**	.337***	.367***	.36***	.144	.374***
2. Social Interest	3.10	1.03	.386***	.278**	.26**	.342***	.351***	.357***	.094	.391***
3. Conscientious	4.58	3.21	.458***	.282**	.349***	.305**	.555***	.44***	.124	.325***
4. Independence	2.77	.67	.347***	.181	.305**	.314***	.401***	.278**	.272**	.137
5. Conformity	3.17	.69	.398***	.142	.245*	.311***	.46***	.381***	.094	.297**
6. Social Focus	3.24	.63	-.301**	-.35***	-.287**	-.189*	-.279**	-.242*	-.075	-.299**
7. Goal/Planning	3.24	.73	.534***	.403***	.408***	.399***	.533***	.512***	.283**	.348***
8. Solitude	2.58	.66	.426***	.281**	.425***	.414***	.368***	.448***	.328***	.283**
9. Risk Taker	2.66	.77	--	.587***	.69***	.634***	.623***	.735***	.456***	.38***
10. Deviance	2.25	.68		--	.577***	.478***	.551***	.50***	.56***	.366***
11. Open-minded	2.64	.76			--	.674***	.57***	.73***	.692***	.288**
12. Dream-like	2.65	.71				--	.472***	.725***	.637***	.202*
13. Emotional (unorganized)	2.52	.78					--	.659***	.469***	.425***
14. Imagination	2.55	.77						--	.587***	.35***
15. Original	2.52	.87							--	.241**
16. Negative Emotion	2.29	.60								--
17. Pessimism	2.05	.55								
18. Exaggeration	2.14	.77								
19. Detail-oriented	2.38	.72								
20. Focus (limited)	3.01	1.02								
21. Problems Identified	3.03	.84								
22. Discrepancy	3.40	1.11								
23. Elaboration	2.66	.92								
24. Unusual Combinations	2.47	.66								
25. Category Items (Fluency)	10.83	7.17								
26. Complexity	2.66	.65								
27. Clarity and Coherence	3.11	.68								
28. Flexibility, integration	3.42	1.06								
29. Role Models	2.26	.89								

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 11 (continued)
Means, Standard Deviations, and Intercorrelations for PAST/PRESENT Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N=103)	M	SD	17	18	19	20	21	22	23	24
1. Group-based	3.06	.97	.337***	.506***	.192*	-.372***	.491***	-.066	.638***	.226*
2. Social Interest	3.10	1.03	.386***	.498***	.207*	-.37***	.522***	-.153	.629***	.24*
3. Conscientious	4.58	3.21	.264**	.62***	.397***	-.411***	.566***	-.066	.558***	.15
4. Independence	2.77	.67	.151	.303**	.25**	-.22*	.313***	.124	.309***	.145
5. Conformity	3.17	.69	.313***	.498***	.347***	-.335***	.568***	.006	.657***	.145
6. Social Focus	3.24	.63	-.311***	-.352***	-.281**	.603***	-.38***	.135	-.316***	-.228*
7. Goal/Planning	3.24	.73	.435***	.521***	.438***	-.448***	.541***	-.082	.578***	.185
8. Solitude	2.58	.66	.277**	.408***	.35***	-.335***	.464***	-.094	.305**	.178
9. Risk Taker	2.66	.77	.324***	.692***	.515***	-.324***	.471***	-.155	.581***	.113
10. Deviance	2.25	.68	.248**	.575***	.436***	-.39***	.35***	.009	.354***	.28**
11. Open-minded	2.64	.76	.17	.589***	.609***	-.35***	.409***	-.012	.448***	.143
12. Dream-like	2.65	.71	.197*	.534***	.54***	-.272**	.532***	.116	.525***	.225*
13. Emotional (unorganized)	2.52	.78	.393***	.724***	.616***	-.519***	.578***	.031	.597***	.215*
14. Imagination	2.55	.77	.25**	.68***	.712***	-.438***	.591***	-.044	.619***	.186
15. Original	2.52	.87	.163	.425***	.492***	-.25**	.277**	.183	.292**	.141
16. Negative Emotion	2.29	.60	.698***	.457***	.134	-.379***	.416***	-.019	.43***	.203*
17. Pessimism	2.05	.55	--	.424***	.063	-.344***	.424***	-.032	.424***	.053
18. Exaggeration	2.14	.77		--	.521***	-.455***	.628***	-.132	.637***	.197*
19. Detail-oriented	2.38	.72			--	-.441***	.467***	-.066	.393***	.085
20. Focus (limited)	3.01	1.02				--	-.446***	.129	-.436***	-.455***
21. Problems Identified	3.03	.84					--	.02	.755***	.33***
22. Discrepancy	3.40	1.11						--	.005	.086
23. Elaboration	2.66	.92							--	.281**
24. Unusual Combinations	2.47	.66								--
25. Category Items (Fluency)	10.83	7.17								
26. Complexity	2.66	.65								
27. Clarity and Coherence	3.11	.68								
28. Flexibility, integration	3.42	1.06								
29. Role Models	2.26	.89								

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 11 (continued)
Means, Standard Deviations, and Intercorrelations for PAST/PRESENT Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N=103)	M	SD	25	26	27	28	29
1. Group-based	3.06	.97					
2. Social Interest	3.10	1.03					
3. Conscientious	4.58	3.21					
4. Independence	2.77	.67					
5. Conformity	3.17	.69					
6. Social Focus	3.24	.63					
7. Goal/Planning	3.24	.73					
8. Solitude	2.58	.66					
9. Risk Taker	2.66	.77					
10. Deviance	2.25	.68					
11. Open-minded	2.64	.76					
12. Dream-like	2.65	.71					
13. Emotional (unorganized)	2.52	.78					
14. Imagination	2.55	.77					
15. Original	2.52	.87					
16. Negative Emotion	2.29	.60					
17. Pessimism	2.05	.55					
18. Exaggeration	2.14	.77					
19. Detail-oriented	2.38	.72					
20. Focus (limited)	3.01	1.02					
21. Problems Identified	3.03	.84					
22. Discrepancy	3.40	1.11	-.071	-.182	-.051	.791***	-.005
23. Elaboration	2.66	.92	.788***	.479***	.226*	.008	.682***
24. Unusual Combinations	2.47	.66	.168	.601***	-.445***	-.044	.312***
25. Category Items (Fluency)	10.83	7.17	--	.371***	.244**	-.044	.626***
26. Complexity	2.66	.65		--	.014	-.261*	.416***
27. Clarity and Coherence	3.11	.68			--	.059	.20*
28. Flexibility, integration	3.42	1.06				--	.003
29. Role Models	2.26	.89					--

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 12
Means, Standard Deviations, and Intercorrelations for FUTURE Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N = 83)	M	SD	1	2	3	4	5	6	7	8
1. Group-based	2.92	.96	--	.806***	.311**	-.023	.439***	-.219*	.37***	.329**
2. Social Interest	2.86	1.05		--	.339**	-.013	.284**	-.18	.296**	.341**
3. Conscientious	5.27	6.20			--	-.095	.337**	-.251*	.269*	.217*
4. Independence	2.79	.62				--	.284**	.174	.338**	.234*
5. Conformity	3.04	.56					--	.067	.448***	.37***
6. Social Focus	3.16	.57						--	.121	.075
7. Goal/Planning	3.34	.61							--	.636***
8. Solitude	2.86	.63								--
9. Risk Taker	2.29	.71								
10. Deviance	2.08	.75								
11. Open-minded	2.20	.65								
12. Dream-like	2.46	.87								
13. Emotional (unorganized)	2.26	.72								
14. Imagination	2.45	.72								
15. Original	2.45	.74								
16. Negative Emotion	2.09	.63								
17. Pessimism	1.91	.54								
18. Exaggeration	1.99	.71								
19. Detail-oriented	2.12	.73								
20. Focus (limited)	2.93	1.59								
21. Problems Identified	2.70	.73								
22. Discrepancy	3.29	1.15								
23. Elaboration	2.42	.80								
24. Unusual Combinations	2.34	.61								
25. Category Items (Fluency)	12.85	9.36								
26. Complexity	2.67	.67								
27. Clarity and Coherence	2.99	.58								
28. Flexibility, integration	3.27	.98								
29. Role Models	3.27	.98								

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 12 (continued)
Means, Standard Deviations, and Intercorrelations for FUTURE Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N=83)	M	SD	9	10	11	12	13	14	15	16
1. Group-based	2.92	.96	.53***	.372***	.307**	.236*	.342**	.364***	.307**	.221*
2. Social Interest	2.86	1.05	.443***	.354***	.273**	.227*	.293**	.427***	.363***	.272*
3. Conscientious	5.27	6.20	.369***	.196	.325**	.181	.301**	.343***	.315**	.268*
4. Independence	2.79	.62	-.006	.137	.12	-.03	.096	.091	.055	.067
5. Conformity	3.04	.56	.478***	.168	.317**	.069	.309**	.384***	.218*	.038
6. Social Focus	3.16	.57	-.416***	-.40***	-.339**	-.057	-.25*	-.226*	-.202	-.118
7. Goal/Planning	3.34	.61	.359***	.078	.33**	.167	.207	.321**	.137	.179
8. Solitude	2.86	.63	.287**	.076	.094	.094	.044	.175	.058	-.119
9. Risk Taker	2.29	.71	--	.563***	.625***	.282**	.648**	.689***	.442***	.186
10. Deviance	2.08	.75		--	.46***	.43***	.702***	.517***	.433***	.261*
11. Open-minded	2.20	.65			--	.308**	.54***	.624***	.51***	.089
12. Dream-like	2.46	.87				--	.384***	.365***	.345***	.244*
13. Emotional (unorganized)	2.26	.72					--	.566***	.374***	.332**
14. Imagination	2.45	.72						--	.58***	.163
15. Original	2.45	.74							--	.037
16. Negative Emotion	2.09	.63								--
17. Pessimism	1.91	.54								
18. Exaggeration	1.99	.71								
19. Detail-oriented	2.12	.73								
20. Focus (limited)	2.93	1.59								
21. Problems Identified	2.70	.73								
22. Discrepancy	3.29	1.15								
23. Elaboration	2.42	.80								
24. Unusual Combinations	2.34	.61								
25. Category Items (Fluency)	12.85	9.36								
26. Complexity	2.67	.67								
27. Clarity and Coherence	2.99	.58								
28. Flexibility, integration	3.27	.98								
29. Role Models	3.27	.98								

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 12 (continued)
Means, Standard Deviations, and Intercorrelations for FUTURE Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N=83)	M	SD	17	18	19	20	21	22	23	24
1. Group-based	2.92	.96	.075	.488***	.232*	-.146	.405***	-.161	.543***	.228*
2. Social Interest	2.86	1.05	.045	.415***	.171	-.151	.462***	-.182	.618***	.323**
3. Conscientious	5.27	6.20	.046	.327**	.255*	-.217*	.309**	-.099	.376***	.184
4. Independence	2.79	.62	-.075	-.014	-.023	-.07	.177	.024	.125	.033
5. Conformity	3.04	.56	-.062	.242*	.296**	-.138	.304**	-.141	.337**	.064
6. Social Focus	3.16	.57	-.106	-.157	-.305**	.418***	-.357***	.119	-.271*	-.317**
7. Goal/Planning	3.34	.61	-.035	.245*	.225*	-.223*	.233*	-.057	.295**	.166
8. Solitude	2.86	.63	-.205	.155	.038	-.167	-.004	-.199	.147	.121
9. Risk Taker	2.29	.71	.042	.571***	.628***	-.398***	.483***	-.19	.591***	.391***
10. Deviance	2.08	.75	.163	.403***	.411***	-.362***	.48***	-.19	.491***	.397***
11. Open-minded	2.20	.65	-.094	.432***	.597***	-.447***	.325**	-.124	.402***	.294**
12. Dream-like	2.46	.87	.158	.166	.211*	-.038	.181	-.128	.26*	.152
13. Emotional (unorganized)	2.26	.72	.136	.627***	.578***	-.418***	.495***	-.107	.547***	.38***
14. Imagination	2.45	.72	-.099	.551***	.62***	-.341***	.552***	-.103	.548***	.325**
15. Original	2.45	.74	-.034	.362***	.346***	-.205	.266*	.069	.356***	.274*
16. Negative Emotion	2.09	.63	.69***	.375***	.144	-.182	.519***	.043	.445***	.331**
17. Pessimism	1.91	.54	--	.158	-.031	-.006	.176	.106	.17	.293**
18. Exaggeration	1.99	.71		--	.499***	-.287**	.40***	-.112	.502***	.33**
19. Detail-oriented	2.12	.73			--	-.49***	.343***	-.058	.405***	.262*
20. Focus (limited)	2.93	1.59				--	-.38***	.029	-.389***	-.407***
21. Problems Identified	2.70	.73					--	-.15	.784***	.476***
22. Discrepancy	3.29	1.15						--	-.152	-.063
23. Elaboration	2.42	.80							--	.539***
24. Unusual Combinations	2.34	.61								--
25. Category Items (Fluency)	12.85	9.36								
26. Complexity	2.67	.67								
27. Clarity and Coherence	2.99	.58								
28. Flexibility, integration	3.27	.98								
29. Role Models	3.27	.98								

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 12 (continued)
Means, Standard Deviations, and Intercorrelations for FUTURE Social/Nonsocial, Psychodynamic, and Cognitive Models

Variables (N=83)	M	SD	25	26	27	28	29
1. Group-based	2.92	.96					
2. Social Interest	2.86	1.05					
3. Conscientious	5.27	6.20					
4. Independence	2.79	.62					
5. Conformity	3.04	.56					
6. Social Focus	3.16	.57					
7. Goal/Planning	3.34	.61					
8. Solitude	2.86	.63					
9. Risk Taker	2.29	.71					
10. Deviance	2.08	.75					
11. Open-minded	2.20	.65					
12. Dream-like	2.46	.87					
13. Emotional (unorganized)	2.26	.72					
14. Imagination	2.45	.72					
15. Original	2.45	.74					
16. Negative Emotion	2.09	.63					
17. Pessimism	1.91	.54					
18. Exaggeration	1.99	.71					
19. Detail-oriented	2.12	.73					
20. Focus (limited)	2.93	1.59					
21. Problems Identified	2.70	.73					
22. Discrepancy	3.29	1.15	.031	-.226*	-.097	.803***	-.212*
23. Elaboration	2.42	.80	.629***	.419***	.071	-.165	.729***
24. Unusual Combinations	2.34	.61	.201	.368***	-.322**	-.209*	.328**
25. Category Items (Fluency)	12.85	9.36	--	.069	.036	.121	.677***
26. Complexity	2.67	.67		--	.222*	-.336**	.457***
27. Clarity and Coherence	2.99	.58			--	-.087	.142
28. Flexibility, integration	3.27	.98				--	-.237*
29. Role Models	3.27	.98					--

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 13

Means, Standard Deviations, and Intercorrelations for Study A: PAST/PRESENT Social/Nonsocial Model

N = 103

Past/Present Constructs	M	SD	1	2	3	4	5	6	7	8
1. Group-based	3.06	.97	--	.864***	.521***	.209*	.718***	-.236*	.464***	.292**
2. Social Interest	3.10	1.03		--	.464***	.138	.655***	-.274**	.493***	.303**
3. Conscientious	4.58	3.21			--	.23*	.638***	-.325***	.42***	.401***
4. Independence	2.77	.67				--	.38***	-.059	.442***	.258**
5. Conformity	3.17	.69					--	-.211*	.541***	.274**
6. Social Focus	3.24	.63						--	-.269**	-.171
7. Goal/Planning	3.24	.73							--	.557***
8. Solitude	2.58	.66								--
Total Past Scores	3.22	.73	.776***	.731***	.878***	.421***	.819***	-.243**	.666***	.547***

* $p < .05$ ** $p < .01$ *** $p < .001$

Means, Standard Deviations, and Intercorrelations for Study A: FUTURE Social/Nonsocial

N = 83

Future Constructs	M	SD	1	2	3	4	5	6	7	8
1. Group-based	2.92	.96	--	.806***	.311**	-.023	.439***	-.219*	.37***	.329**
2. Social Interest	2.86	1.05		--	.339**	-.013	.284**	-.180	.296**	.341**
3. Conscientious	5.27	6.20			--	-.095	.337**	-.251*	.269**	.217*
4. Independence	2.79	.62				--	.284**	.174	.338**	.234*
5. Conformity	3.04	.56					--	.067	.448***	.37***
6. Social Focus	3.16	.57						--	.121	.075
7. Goal/Planning	3.34	.61							--	.636***
8. Solitude	2.86	.63								--
Total Future Scores	26.23	7.71	.554***	.566***	.926***	.079	.53***	-.144	.501***	.445***

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 13 (Continued)

Means, Standard Deviations, and Intercorrelations for Study B: PAST/PRESENT Psychodynamic Model

N = 103

Past/Present Variables	M	SD	1	2	3	4	5	6	7	8
1. Risk Taker	2.66	.77	--	.587***	.69***	.634***	.623***	.735***	.456***	.38***
2. Deviance	2.25	.68		--	.577***	.478***	.551***	.5***	.56***	.366***
3. Open-minded	2.64	.76			--	.674***	.57***	.73***	.692***	.288**
4. Dream-like	2.65	.71				--	.472***	.725***	.637***	.202*
5. Emotional (unorganized)	2.52	.78					--	.659***	.469***	.425***
6. Imagination (colorful)	2.55	.77						--	.587***	.35***
7. Original	2.52	.87							--	.241*
8. Negative Emotion	2.29	.6								--
9. Pessimism	2.05	.55								
10. Exaggeration	2.14	.77								
11. Detail-oriented	2.38	.72								
Total Scores	26.65	5.94	.825***	.728***	.83***	.765***	.806***	.867***	.726***	.53***

Table (continued)

Past/Present Variables	M	SD	9	10	11
1. Risk Taker	2.66	.77	.324***	.692***	.515***
2. Deviance	2.25	.68	.248**	.575***	.436***
3. Open-minded	2.64	.76	.17	.589***	.609***
4. Dream-like	2.65	.71	.197*	.534***	.54***
5. Emotional (unorganized)	2.52	.78	.393***	.724***	.616***
6. Imagination (colorful)	2.55	.77	.25**	.68***	.712***
7. Original	2.52	.87	.163	.425***	.492***
8. Negative Emotion	2.29	.60	.698***	.457***	.134
9. Pessimism	2.05	.55	--	.424***	.063
10. Exaggeration	2.14	.77		--	.521***
11. Detail-oriented	2.38	.72			--
Total Scores	26.65	5.94	.45***	.818***	.712***

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 13 (continued)

Means, Standard Deviations, and Intercorrelations for Study B: FUTURE Psychodynamic Model

N = 84

FUTURE Variables	M	SD	1	2	3	4	5	6	7	8
1. Risk Taker	2.29	.71	--	.587***	.625***	.282**	.648***	.689***	.442***	.186
2. Deviance	2.08	.75		--	.46***	.43***	.702***	.517***	.433***	.261*
3. Open-minded	2.20	.65			--	.308**	.54***	.624***	.51***	.089
4. Dream-like	2.46	.87				--	.384***	.365***	.345***	.244*
5. Emotional (unorganized)	2.26	.72					--	.566***	.374***	.332**
6. Imagination (colorful)	2.45	.72						--	.58***	.163
7. Original (unusual)	2.45	.74							--	.037
8. Negative Emotion	2.09	.63								--
9. Pessimism	1.91	.54								
10. Exaggeration	1.99	.71								
11. Detail-oriented	2.12	.73								

Table (continued)

FUTURE Variables	M	SD	9	10	11
1. Risk Taker	2.29	.71	.042	.571***	.628***
2. Deviance	2.08	.75	.163	.403***	.411***
3. Open-minded	2.20	.65	-.094	.432***	.597***
4. Dream-like	2.46	.87	.158	.166	.211*
5. Emotional (unorganized)	2.26	.72	.136	.627***	.578***
6. Imagination (colorful)	2.45	.72	-.099	.551***	.62***
7. Original (unusual)	2.45	.74	-.034	.362***	.346***
8. Negative Emotion	2.09	.63	.69***	.375***	.144
9. Pessimism	1.91	.54	--	.158	-.031
10. Exaggeration	1.99	.71		--	.499***
11. Detail-oriented	2.12	.73			--

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 13 (continued)

Means, Standard Deviations, and Intercorrelations for Study C: PAST/PRESENT Cognitive Problem-solving Model

Past/Present Variables	N	M	SD	1	2	3	4	5	6	7
1. Focused (limited)	103	3.01	1.02	--	-.446***	.129	-.436***	-.455***	-.277**	-.441***
2. Problems Identified	103	3.03	.84		--	.02	.755***	.33***	.706***	.46***
3. Discrepancy	83	3.4	1.11			--	.005	.086	-.071	-.182
4. Elaboration	103	2.66	.92				--	.281**	.788***	.479***
5. Unusual combinations	103	2.47	.66					--	.168	.601***
6. Category Items	103	10.83	7.17						--	.371***
7. Complexity	103	2.66	.65							--
8. Clarity and coherence	103	3.11	.68							
9. Flexibility, integration	85	3.41	1.06							
10. Role Models	103	2.26	.89							
Total Scores	103	35.6	9.32	-.239**	.732***	.174	.826***	.156	.93***	.358***

Table (continued)

Past/Present Variables	N	M	SD	8	9	10
1. Focused (limited)	103	3.01	1.02	.309***	.274**	-.364***
2. Problems Identified	103	3.03	.84	.158	-.03	.564***
3. Discrepancy	83	3.4	1.11	-.051	.791***	-.005
4. Elaboration	103	2.66	.92	.226*	.008	.682***
5. Unusual combinations	103	2.47	.66	-.445***	-.044	.312***
6. Category Items	103	10.83	7.17	.244*	-.044	.626***
7. Complexity	103	2.66	.65	.014	-.261*	.416***
8. Clarity and coherence	103	3.11	.68	--	.059	.2*
9. Flexibility, integration	85	3.41	1.06		--	.003
10. Role Models	103	2.26	.89			--
Total Scores	103	35.6	9.32	.324***	.196	.657***

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 13 (continued)

Means, Standard Deviations, and Intercorrelations for Study C: FUTURE Cognitive Problem-solving Model

FUTURE Variables	N	M	SD	1	2	3	4	5	6	7
1. Focused (limited)	84	2.93	1.59	--	-.38***	.029	-.389***	-.407***	-.112	-.284**
2. Problems Identified	84	2.70	.73		--	-.15	.784***	.476***	.588***	.366***
3. Discrepancy	83	3.29	1.15			--	-.152	-.063	.031	-.226*
4. Elaboration	84	2.42	.80				--	.539***	.629***	.419***
5. Unusual combinations	84	2.34	.61					--	.201	.368***
6. Category Items	84	12.85	9.36						--	.069
7. Complexity	84	2.67	.67							--
8. Clarity and coherence	84	2.99	.58							
9. Flexibility, integration	83	3.27	.98							
10. Role Models	84	2.14	.98							
Total Scores	84	37.51	11.48	-.06	.624***	.139	.672***	.242*	.974***	.153

Table (continued)

FUTURE Variables	N	M	SD	8	9	10
1. Focused (limited)	84	2.93	1.59	.057	.199	-.323**
2. Problems Identified	84	2.70	.73	-.031	-.143	.638***
3. Discrepancy	83	3.29	1.15	-.097	.803***	-.212*
4. Elaboration	84	2.42	.80	.071	-.165	.729***
5. Unusual combinations	84	2.34	.61	-.322**	-.209*	.328**
6. Category Items	84	12.85	9.36	.036	.121	.677***
7. Complexity	84	2.67	.67	.222*	-.336**	.457***
8. Clarity and coherence	84	2.99	.58	--	-.087	.142
9. Flexibility, integration	83	3.27	.98		--	-.237*
10. Role Models	84	2.14	.98			--
Total Scores	84	37.51	11.48	.093	.217*	.703***

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 14
Correlations of PAST/PRESENT Self-concept scales with Reference Measures

Social/Nonsocial Model		M	SD	Covariates: Verbal Reasoning	Covariates: Social Desirability
1.	Group-based	3.06	.97	.03	-.14
2.	Social Interest	3.10	1.03	.04	-.19t
3.	Conscientious	4.58	3.21	.08	-.09
4.	Independence	2.77	.67	.01	-.11
5.	Conformity	3.17	.69	-.03	-.16
6.	Social Focus	3.24	.63	-.07	.17
7.	Goal/Planning	3.24	.73	.02	-.17
8.	Solitude	2.58	.66	.09	-.01
Psychodynamic Model					
1.	Risk Taker	2.66	.77	.06	-.16
2.	Deviance	2.25	.68	.08	-.17
3.	Open-minded	2.64	.76	.04	-.17
4.	Dream-like	2.65	.71	.03	-.15
5.	Emotional (unorganized)	2.52	.78	-.11	-.19t
6.	Imagination	2.55	.77	.03	-.12
7.	Original	2.52	.87	.03	-.12
8.	Negative Emotion	2.29	.60	-.13	.02
9.	Pessimism	2.05	.55	-.15	-.06
10.	Exaggeration	2.14	.77	.01	-.12
11.	Detail-oriented	2.38	.72	.10	-.18t
Cognitive Problem-solving Model					
1.	Focused (limited)	3.01	1.02	-.07	.11
2.	Problems Identified	3.03	.84	.04	-.08
3.	Discrepancy	3.40	1.11	-.10	-.14
4.	Elaboration	2.66	.92	-.12	-.21*
5.	Unusual Combinations	2.47	.66	.06	-.12
6.	Category Items	10.83	7.17	-.06	-.12
7.	Complexity	2.66	.65	-.001	-.11
8.	Clarity and Coherence	3.11	.68	.04	.10
9.	Flexibility, Integration	3.42	1.06	-.16	-.10
10.	Role Models	2.26	.89	-.06	-.13

* $p \leq .05$ **$p \leq .01$ t = marginally significant

Table 14 (continued)
Correlations of PAST/PRESENT Self-concept scales with Reference Measures

		Social skills						
		Emotional Expressivity	Emotional Sensitivity	Emotional Control	Social Expressivity	Social Sensitivity	Social Control	Total Social
Social/nonsocial								
1.	Group-based	-.04	-.10	-.03	-.16	-.07	-.18t	-.19t
2.	Social Interest	-.17	-.07	.002	-.17	-.13	-.14	-.21*
3.	Conscientious	-.01	-.09	-.04	-.10	-.07	-.03	-.11
4.	Independence	.06	-.14	-.02	.005	-.05	.09	-.007
5.	Conformity	-.05	-.11	-.08	-.08	-.08	-.06	-.14
6.	Social Focus	-.05	.09	-.06	.05	.13	.02	.07
7.	Goal/Planning	-.10	-.17	-.11	-.20*	-.07	-.12	-.24*
8.	Solitude	-.22*	-.13	-.10	-.15	.01	-.11	-.20t
Psychodynamic								
1.	Risk Taker	.05	-.001	-.05	-.11	-.07	-.09	-.10
2.	Deviance	-.01	-.07	-.07	-.13	-.11	-.11	-.16
3.	Open-minded	.04	-.04	.05	-.06	-.12	-.06	-.07
4.	Dream-like	-.03	-.17t	-.04	-.08	-.05	-.09	-.14
5.	Emotional (unorganized)	-.12	-.03	-.01	-.16	-.09	-.12	-.17t
6.	Imagination (colorful)	.005	-.13	-.05	-.12	-.007	-.08	-.12
7.	Original	.12	-.09	-.11	-.09	.03	-.03	-.05
8.	Negative Emotion	-.02	.09	-.17	-.07	.08	-.11	-.05
9.	Pessimism	-.15	-.01	-.09	-.11	-.004	-.13	-.15
10.	Exaggeration	-.04	-.11	.06	-.15	-.10	-.10	-.15
11.	Detail-oriented	-.10	-.03	-.04	-.06	-.09	-.006	-.10
Cognitive Problem-solving								
1.	Focused (limited)	.02	.09	-.03	.04	.05	.12	.10
2.	Problems Identified	-.16	-.17	-.09	-.14	.02	-.13	-.19t
3.	Discrepancy	-.02	-.23*	-.08	-.07	-.10	.12	-.10
4.	Elaboration	-.12	-.17	-.05	-.21*	-.10	-.14	-.25**
5.	Unusual Combinations	.04	-.23*	-.07	.07	-.09	-.06	-.08
6.	Category Items	.05	-.05	-.09	-.03	-.05	-.01	-.05
7.	Complexity	.03	-.10	.05	-.01	-.09	-.05	-.05
8.	Clarity and Coherence	-.14	.02	.14	-.19t	.06	-.12	-.10
9.	Flexibility, Integration	-.07	-.19	.05	-.14	-.09	-.03	-.15
10.	Role Models	.04	-.001	.05	-.05	-.07	-.02	-.03

* p $\leq$.05 **p $\leq$.01 t = marginally significant

Table 15
Correlations of FUTURE Self-concept scales with Reference Measures

Social/Nonsocial Model		M	SD	Covariates: Verbal Reasoning	Covariates: Social Desirability
1.	Group-based	2.92	.96	.18	-.23*
2.	Social Interest	2.86	1.05	.21t	-.27**
3.	Conscientious	5.27	6.20	-.01	.002
4.	Independence	2.78	.62	-.12	-.18
5.	Conformity	3.04	.56	.08	-.05
6.	Social Focus	3.16	.57	.07	-.07
7.	Goal/Planning	3.34	.61	-.15	-.11
8.	Solitude	2.86	.63	.06	-.20t
Psychodynamic Model					
1.	Risk Taker	2.29	.71	.09	-.06
2.	Deviance	2.08	.75	-.003	-.11
3.	Open-minded	2.20	.65	-.04	.09
4.	Dream-like	2.46	.87	-.19	.06
5.	Emotional (unorganized)	2.26	.72	.01	-.07
6.	Imagination	2.45	.72	-.11	-.11
7.	Original	2.45	.74	-.29*	-.16
8.	Negative Emotion	2.09	.63	-.21t	.05
9.	Pessimism	1.91	.54	-.10	.12
10.	Exaggeration	1.99	.71	-.10	-.10
11.	Detail-oriented	2.12	.73	-.03	.05
Cognitive Problem-solving Model					
1.	Focused (limited)	2.93	1.59	-.11	.11
2.	Problems Identified	2.70	.73	.05	-.07
3.	Discrepancy	3.29	1.15	-.10	.04
4.	Elaboration	2.42	.80	.16	-.13
5.	Unusual Combinations	2.34	.61	.08	-.13
6.	Category Items	12.85	9.36	-.02	-.12
7.	Complexity	2.67	.67	.13	-.11
8.	Clarity and Coherence	2.99	.58	-.04	.09
9.	Flexibility, Integration	3.27	.98	-.16	-.10
10.	Role Models	2.14	.98	.12	-.04

* $p \leq .05$ **$p \leq .01$ t = marginally significant

Table 15 (continued)
Correlations of FUTURE Self-concept scales with Reference Measures

	Social skills						
	Emotional Expressivity	Emotional Sensitivity	Emotional Control	Social Expressivity	Social Sensitivity	Social Control	Total Social
Social/Nonsocial							
1. Group-based	-.04	-.07	-.10	-.07	-.24*	-.06	-.18
2. Social Interest	-.08	-.03	-.11	-.06	-.24*	-.07	-.17
3. Conscientiousness	-.21t	-.01	.04	-.12	-.10	-.24*	-.20t
4. Independence	.04	.05	-.09	.03	-.09	.05	.004
5. Conformity	-.20t	-.11	-.06	-.10	-.08	-.10	-.19
6. Social Focus	-.15	-.12	-.08	-.13	-.09	.04	-.15
7. Goal/Planning	-.06	.15	.03	.15	-.17	.08	.06
8. Solitude	.05	.13	.03	.09	-.25*	.08	.03
Psychodynamic							
1. Risk Taker	-.10	-.12	-.15	-.08	.04	-.06	-.13
2. Deviance	-.16	-.13	-.18	-.21t	.10	-.20t	-.24*
3. Open-minded	-.02	-.001	-.03	-.08	.20t	-.17	-.05
4. Dream-like	-.23*	-.12	-.14	-.14	.11	-.16	-.20t
5. Emotional (unorganized)	-.17	-.12	-.22t	-.19	.07	-.19	-.24*
6. Imagination (colorful)	-.12	-.11	-.11	-.13	.04	-.15	-.17
7. Original	.07	.04	.06	-.06	-.04	-.05	-.01
8. Negative Emotion	-.25*	-.08	-.15	-.29**	.13	-.31**	-.30**
9. Pessimism	-.15	-.08	.02	-.03	.13	-.15	-.08
10. Exaggeration	-.07	-.11	-.04	-.21t	-.04	-.11	-.18
11. Detail-oriented	-.10	-.10	.05	-.15	.09	-.21t	-.14
Cognitive Problem-solving							
1. Focused (limited)	-.08	-.02	.03	.02	.07	-.02	.01
2. Problems Identified	-.08	-.02	-.16	-.19	.13	-.28*	-.20t
3. Discrepancy	-.13	-.22t	-.03	-.10	.03	-.09	-.15
4. Elaboration	-.02	.05	-.11	-.16	.02	-.20t	-.15
5. Unusual Combinations	.07	.12	-.12	.09	.08	-.07	.05
6. Category Items	-.06	-.04	-.07	-.15	-.09	-.06	-.15
7. Complexity	-.15	-.04	.01	-.16	-.01	-.22*	-.19
8. Clarity and Coherence	.05	.11	.06	.10	.04	-.01	.10
9. Flexibility, Integration	-.05	-.20t	-.01	-.11	-.09	-.01	-.14
10. Role Models	-.10	-.10	-.001	-.17	-.004	-.19	-.18

* $p \leq .05$ **$p \leq .01$ t = marginally significant

Table 16

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to OTHERS	M	SD	Intellectual/ academic ability	Social Skills/ Social competence	Artistic and/or Musical ability	Athletic ability__
PAST/PRESENT Self-concept to OTHERS						
1. Group-based	3.06	.97	-.09	.03	.07	.09
2. Social Interest	3.10	1.03	-.03	-.01	.10	.08
3. Conscientious	4.58	3.21	.05	.04	.01	.05
4. Independence	2.77	.67	-.01	.15	.02	.15
5. Conformity	3.17	.69	-.03	.12	.18t	.13
6. Social Focus	3.24	.63	-.02	.08	.02	-.05
7. Goal/Planning	3.24	.73	.01	.02	.08	.02
8. Solitude	2.58	.66	.14	.07	.14	.03
9. Risk Taker	2.66	.77	-.16	.08	.14	.01
10. Deviance	2.25	.68	-.01	-.02	.05	.15
11. Open-minded	2.64	.76	.03	.08	-.08	.06
12. Dream-like	2.65	.71	-.06	.03	.02	.05
13. Emotional (unorganized)	2.52	.78	.03	.07	.05	-.02
14. Imagination (colorful)	2.55	.77	-.07	.08	.004	-.07
15. Original	2.52	.87	.11	-.01	-.004	-.002
16. Negative Emotion	2.29	.60	-.05	.11	-.008	.05
17. Pessimism	2.05	.55	.03	-.005	.17	.03
18. Exaggeration	2.14	.77	.03	.02	.02	.08
19. Detail-oriented	2.38	.72	.01	.11	-.02	.08
20. Cognitive Focus (limited)	3.01	1.02	-.04	-.001	.01	-.05
21. Problems Identified	3.03	.84	.01	.05	.02	.19t
22. Discrepancy	3.40	1.11	.13	-.10	.13	-.15
23. Elaboration	2.66	.92	-.14	-.05	.01	.04
24. Unusual Combinations	2.47	.66	-.03	.02	-.04	.21*
25. Category Items	10.83	7.17	-.08	.13	-.06	.18t
26. Complexity	2.66	.65	-.02	-.01	-.02	.26**
27. Clarity and Coherence	3.11	.68	.05	.002	.15	.05
28. Flexibility, Integration	3.42	1.06	-.01	-.01	.09	-.17
29. Role Models	2.26	.89	-.10	.19t	.12	.20*

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 16 (continued)

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to OTHERS	Physical Attraction	Leadership Ability	Common Sense	Emotional Stability	Sense of Humor	Discipline
PAST/PRESENT Self-concept to OTHERS						
1. Group-based	.04	-.06	.01	.06	.θ	.14
2. Social Interest	.04	-.08	.01	.08	.01	.08
3. Conscientious	-.10	.04	.14	.11	.09	-.02
4. Independence	.11	.12	.05	.05	-.04	.03
5. Conformity	.12	.07	.07	.06	.07	.09
6. Social Focus	-.10	.12	-.05	-.07	.07	.03
7. Goal/Planning	-.08	-.12	.05	.06	-.08	-.08
8. Solitude	-.08	-.08	.05	.12	.02	-.03
9. Risk Taker	-.15	-.09	.02	.03	-.04	-.16
10. Deviance	-.11	-.13	.09	.11	.004	.09
11. Open-minded	.05	-.08	.18t	-.07	.09	-.04
12. Dream-like	-.07	-.17	.02	-.03	-.03	-.06
13. Emotional (unorganized)	-.19t	-.25*	-.004	.03	.002	.04
14. Imagination (colorful)	-.11	-.11	-.02	-.13	-.17	-.16
15. Original	-.07	-.12	.08	-.08	-.10	.10
16. Negative Emotion	-.08	-.23*	.03	.05	-.10	.15
17. Pessimism	-.10	-.18t	.06	.09	-.16	.12
18. Exaggeration	-.15	-.11	.003	-.02	-.05	-.009
19. Detail-oriented	-.01	-.009	.12	.02	.008	-.05
20. Cognitive Focus (limited)	.07	.23*	.02	.07	.05	.02
21. Problems Identified	.002	-.09	.07	.07	.09	.03
22. Discrepancy	-.03	.03	-.02	-.03	.08	-.06
23. Elaboration	-.01	-.16	.02	-.03	-.04	-.05
24. Unusual Combinations	.15	-.16	-.006	.01	.07	.03
25. Category Items	.05	-.02	-.01	.06	-.04	.08
26. Complexity	.23*	.09	.10	-.08	.07	.06
27. Clarity and Coherence	-.08	.16	.13	.03	.10	-.07
28. Flexibility, Integration	-.01	-.02	.02	.02	.23*	-.05
29. Role Models	.15	.03	-.04	-.04	.02	-.07

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 17

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to CERTAIN	M	SD	Intellectual/ academic ability	Social Skills/ Social competence	Artistic and/or Musical ability	Athletic ability
PAST/PRESENT Self-concept to CERTAIN						
1. Group-based	3.06	.97	-.01	.05	.16	.35***
2. Social Interest	3.10	1.03	-.05	-.02	.22*	.29**
3. Conscientious	4.58	3.21	-.04	.05	.20*	.27*
4. Independence	2.77	.67	.07	.07	.02	-.04
5. Conformity	3.17	.69	.02	.08	.18t	.26*
6. Social Focus	3.24	.63	.05	-.02	.02	-.04
7. Goal/Planning	3.24	.73	-.08	.03	.24*	.17
8. Solitude	2.58	.66	-.01	-.05	.31**	.03
9. Risk Taker	2.66	.77	-.16	.07	.09	.08
10. Deviance	2.25	.68	-.08	.05	.14	.22*
11. Open-minded	2.64	.76	-.03	.10	.18t	.20*
12. Dream-like	2.65	.71	-.08	.08	.25**	.15
13. Emotional (unorganized)	2.52	.78	-.01	.03	.21*	.25*
14. Imagination (colorful)	2.55	.77	-.11	.04	.21*	.14
15. Original	2.52	.87	-.03	-.002	.08	.07
16. Negative Emotion	2.29	.60	-.09	.06	-.013	.13
17. Pessimism	2.05	.55	.02	-.005	-.07	.08
18. Exaggeration	2.14	.77	-.01	.18t	.17t	.23*
19. Detail-oriented	2.38	.72	.07	.09	.33***	.07
20. Cognitive Focus (limited)	3.01	1.02	.03	.004	-.12	-.17
21. Problems Identified	3.03	.84	.04	.12	.26**	.26**
22. Discrepancy	3.40	1.11	.06	-.01	.03	-.03
23. Elaboration	2.66	.92	-.05	.09	.21*	.23*
24. Unusual Combinations	2.47	.66	-.08	.06	.15	.19t
25. Category Items	10.83	7.17	-.01	.21*	.05	.26*
26. Complexity	2.66	.65	.01	.12	.21*	.18t
27. Clarity and Coherence	3.11	.68	.01	-.04	.10	.07
28. Flexibility, Integration	3.42	1.06	.03	-.05	.16	.10
29. Role Models	2.26	.89	-.01	.29**	.09	.34***

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 17 (continued)

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to CERTAIN	Physical Attraction	Leadership Ability	Common Sense	Emotional Stability	Sense of Humor	Discipline
PAST/PRESENT Self-concept to CERTAIN						
1. Group-based	.28**	.16	.05	.13	.19t	.22*
2. Social Interest	.20*	.09	.07	.10	.16	.18t
3. Conscientious	.22*	.09	.07	-.01	.07	.02
4. Independence	.11	-.09	-.09	-.08	-.22*	-.02
5. Conformity	.33***	.11	.04	.08	.08	.16
6. Social Focus	-.13	.10	-.06	-.01	.14	.10
7. Goal/Planning	.02	-.18t	.06	-.002	-.05	-.19t
8. Solitude	.07	-.04	-.01	.01	-.03	-.13
9. Risk Taker	.03	-.08	-.02	.03	.001	-.04
10. Deviance	-.01	-.03	.08	.09	.13	-.05
11. Open-minded	.20*	-.01	.10	.05	.08	-.07
12. Dream-like	.08	-.14	-.02	-.08	-.04	-.07
13. Emotional (unorganized)	.08	-.18t	.05	.01	.14	.01
14. Imagination (colorful)	.08	-.15	-.04	-.13	-.05	-.02
15. Original	.03	-.03	.02	-.01	-.02	-.07
16. Negative Emotion	.08	-.09	.02	-.01	-.05	.001
17. Pessimism	.11	-.07	.16	.01	-.08	-.08
18. Exaggeration	.19t	-.001	-.02	-.03	.02	-.06
19. Detail-oriented	.006	-.16	.09	-.02	.06	.01
20. Cognitive Focus (limited)	-.13	.09	-.10	-.05	.06	.07
21. Problems Identified	.19t	-.14	.07	-.002	.10	.05
22. Discrepancy	-.04	.004	.08	.06	.12	-.03
23. Elaboration	.20t	-.02	.06	.02	.04	-.02
24. Unusual Combinations	.11	-.01	.08	.03	.11	.13
25. Category Items	.20*	-.004	-.02	.02	.03	.15
26. Complexity	.24*	.03	.16	-.04	.05	.09
27. Clarity and Coherence	-.10	-.13	.02	-.08	-.06	-.19t
28. Flexibility, Integration	-.04	.12	.13	.16	.27**	.003
29. Role Models	.23*	.13	.11	.02	.14	.15

*p $\leq$ .05 **p $\leq$ .01 ***p $\leq$ .001 t = marginally significant

Table 18

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to IMPORTANT	M	SD	Intellectual/ academic ability	Social Skills/ Social competence	Artistic and/or Musical ability	Athletic ability
PAST/PRESENT Self-concept to IMPORTANT						
1. Group-based	3.06	.97	-.10	.02	.04	.10
2. Social Interest	3.10	1.03	-.07	.05	.07	.05
3. Conscientious	4.58	3.21	-.18t	-.01	.03	.09
4. Independence	2.77	.67	.13	.002	.06	.01
5. Conformity	3.17	.69	-.18t	.01	.14	.13
6. Social Focus	3.24	.63	-.03	.06	.14	-.06
7. Goal/Planning	3.24	.73	-.09	.003	.05	-.02
8. Solitude	2.58	.66	-.06	-.02	.19t	-.03
9. Risk Taker	2.66	.77	-.24*	-.07	.13	.03
10. Deviance	2.25	.68	.02	-.15	.03	.12
11. Open-minded	2.64	.76	-.13	-.13	-.04	.04
12. Dream-like	2.65	.71	-.02	-.05	.02	-.01
13. Emotional (unorganized)	2.52	.78	-.04	-.03	.15	.03
14. Imagination (colorful)	2.55	.77	-.14	-.01	.06	-.04
15. Original	2.52	.87	.09	-.24*	.03	.05
16. Negative Emotion	2.29	.60	-.12	.03	.06	-.05
17. Pessimism	2.05	.55	-.11	.06	.11	-.13
18. Exaggeration	2.14	.77	-.12	.01	.10	.04
19. Detail-oriented	2.38	.72	-.13	-.13	-.02	.13
20. Cognitive Focus (limited)	3.01	1.02	.06	.03	.02	-.03
21. Problems Identified	3.03	.84	-.11	-.02	.02	.14
22. Discrepancy	3.40	1.11	.36**	.05	.12	-.15
23. Elaboration	2.66	.92	-.30**	-.03	-.003	.06
24. Unusual Combinations	2.47	.66	.06	.04	-.07	.14
25. Category Items	10.83	7.17	-.17	.09	-.07	.18t
26. Complexity	2.66	.65	-.09	-.10	-.01	.26**
27. Clarity and Coherence	3.11	.68	-.20*	-.01	.17t	.03
28. Flexibility, Integration	3.42	1.06	.20	.07	.08	-.12
29. Role Models	2.26	.89	-.16	.13	.06	.07

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 18 (continued)

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to IMPORTANT		Physical Attraction	Leadership Ability	Common Sense	Emotional Stability	Sense of Humor	Discipline
PAST/PRESENT Self-concept to IMPORTANT							
1.	Group-based	-.06	.09	.16	-.17t	-.01	.22*
2.	Social Interest	-.10	.01	.11	-.16	.05	.24*
3.	Conscientious	-.06	.06	.04	-.22*	-.10	.09
4.	Independence	-.08	.10	-.13	.09	-.18t	.02
5.	Conformity	-.05	-.02	.03	-.26**	-.05	.18t
6.	Social Focus	-.10	-.07	-.16	.03	.07	.05
7.	Goal/Planning	-.17	-.11	-.07	-.03	-.05	-.05
8.	Solitude	-.12	-.02	-.09	.001	.02	.07
9.	Risk Taker	-.09	-.05	.06	-.11	.01	.09
10.	Deviance	-.15	-.04	.07	-.05	-.02	.15
11.	Open-minded	-.19t	-.11	.08	-.002	.04	-.001
12.	Dream-like	.02	-.11	.08	-.06	.05	.14
13.	Emotional (unorganized)	-.13	-.12	-.01	-.08	-.01	.24*
14.	Imagination (colorful)	-.09	-.04	-.06	-.19t	-.09	.14
15.	Original	-.10	-.15	-.002	.01	-.11	.11
16.	Negative Emotion	-.05	.05	-.05	.004	-.12	.15
17.	Pessimism	-.11	-.04	-.07	.09	-.11	.13
18.	Exaggeration	-.004	-.01	.07	-.16	-.15	.19t
19.	Detail-oriented	-.12	-.12	.06	-.04	.08	.07
20.	Cognitive Focus (limited)	.05	.03	.003	.10	-.01	.03
21.	Problems Identified	-.01	-.07	.05	-.18t	-.01	.23*
22.	Discrepancy	-.12	-.01	.03	.11	-.05	.13
23.	Elaboration	-.07	-.06	-.03	-.26**	-.05	.14
24.	Unusual Combinations	.18t	.06	.06	-.13	.06	.18t
25.	Category Items	-.02	.01	.01	-.17	-.12	.22*
26.	Complexity	-.03	.02	.07	-.28**	-.06	.08
27.	Clarity and Coherence	-.23*	-.21*	-.08	-.15	-.02	-.04
28.	Flexibility, Integration	-.03	-.01	.11	.08	.01	.15
29.	Role Models	-.04	.08	.11	-.24*	-.05	.12

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 19

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to OTHERS	M	SD	Intellectual/ academic ability	Social Skills/ Social competence	Artistic and/or Musical ability	Athletic ability
FUTURE Self-concept to OTHERS						
1. Group-based	2.92	.96	-.03	.02	-.01	.04
2. Social Interest	2.86	1.05	-.08	.08	.08	.03
3. Conscientious	5.27	6.20	-.15	.03	-.14	.23*
4. Independence	2.79	.62	-.05	-.19	-.05	-.04
5. Conformity	3.04	.56	.07	-.03	.01	-.01
6. Social Focus	3.16	.57	.03	-.10	.29**	-.05
7. Goal/Planning	3.34	.61	-.26*	-.05	-.04	.15
8. Solitude	2.86	.63	-.27*	.02	-.07	.09
9. Risk Taker	2.29	.71	.01	.01	-.20t	.06
10. Deviance	2.08	.75	.007	-.06	-.07	-.01
11. Open-minded	2.20	.65	-.09	-.03	-.14	.06
12. Dream-like	2.46	.87	-.15	.05	.07	.14
13. Emotional (unorganized)	2.26	.72	.04	-.04	-.08	.06
14. Imagination (colorful)	2.45	.72	-.04	.04	.04	.08
15. Original	2.45	.74	-.18	.01	-.14	.14
16. Negative Emotion	2.09	.63	-.02	-.23*	.05	-.02
17. Pessimism	1.91	.54	.07	-.10	.03	.06
18. Exaggeration	1.99	.71	-.07	-.14	-.01	-.01
19. Detail-oriented	2.12	.73	-.05	-.12	.07	.04
20. Cognitive Focus (limited)	2.93	1.59	-.13	.07	.01	-.17
21. Problems Identified	2.70	.73	-.03	-.08	-.07	.03
22. Discrepancy	3.29	1.15	.18	-.16	.13	-.10
23. Elaboration	2.42	.80	-.01	-.07	-.05	-.02
24. Unusual Combinations	2.34	.61	.02	-.09	-.12	.09
25. Category Items	12.85	9.36	-.04	-.12	-.02	-.12
26. Complexity	2.67	.67	-.01	-.02	-.13	.03
27. Clarity and Coherence	2.99	.58	-.11	.09	.06	-.002
29. Flexibility, Integration	3.27	.98	.12	-.03	.10	-.15
29. Role Models	3.27	.98	.04	-.14	.03	-.03

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 19 (continued)

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to OTHERS		Physical Attraction	Leadership Ability	Common Sense	Emotional Stability	Sense of Humor	Discipline
FUTURE Self-concept To OTHERS							
1.	Group-based	.08	-.09	.09	.24*	.23*	.14
2.	Social Interest	.15	-.08	.10	.35**	.15	.10
3.	Conscientious	.10	-.07	-.14	.03	.23*	-.09
4.	Independence	-.13	-.08	-.22t	.01	-.20t	-.05
5.	Conformity	-.02	-.04	-.01	.08	.13	-.02
6.	Social Focus	-.15	.11	-.07	.01	-.02	-.20t
7.	Goal/Planning	-.06	-.05	-.13	.06	.07	-.07
8.	Solitude	.003	-.06	.01	.07	.09	-.13
9.	Risk Taker	-.10	-.09	.15	.14	.19t	.02
10.	Deviance	-.02	-.15	.10	.09	.01	.09
11.	Open-minded	-.06	-.10	-.09	-.12	.04	-.04
12.	Dream-like	.02	-.05	.03	.14	-.11	-.19
13.	Emotional (unorganized)	.00	-.09	.17	.10	.27*	.09
14.	Imagination (colorful)	-.10	-.04	-.01	-.02	-.05	-.11
15.	Original	.05	.11	.002	-.04	-.05	-.10
16.	Negative Emotion	-.03	-.19	.12	.16	.01	.003
17.	Pessimism	.05	-.08	.26*	.10	-.02	.01
18.	Exaggeration	-.14	-.18	.0	-.03	.08	-.06
19.	Detail-oriented	-.16	-.14	.05	-.11	-.004	-.09
20.	Cognitive Focus (limited)	.06	.05	-.03	-.07	-.10	-.02
21.	Problems Identified	-.02	-.19	.08	.14	.15	.17
22.	Discrepancy	.04	.08	.05	-.06	.07	.03
23.	Elaboration	.01	-.13	.16	.20t	.25*	.13
24.	Unusual Combinations	.03	-.12	.15	.12	.07	.07
25.	Category Items	.04	-.004	.11	.11	.19	.06
26.	Complexity	-.09	-.10	.19t	.05	.04	.04
27.	Clarity and Coherence	-.06	.08	.03	-.08	.14	-.09
28.	Flexibility, Integration	.16	.11	-.03	-.06	.11	-.03
29.	Role Models	-.02	-.07	.12	.03	.11	.02

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 20

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-Concept Related to CERTAIN		M	SD	Intellectual/ academic ability	Social Skills/ Social competence	Artistic and/or Musical ability	Athletic ability
FUTURE Self-concept to CERTAIN							
1.	Group-based	2.92	.96	-.02	.03	.16	.09
2.	Social Interest	2.86	1.05	-.08	-.07	.11	.04
3.	Conscientious	5.27	6.20	-.14	.17	.18	.14
4.	Independence	2.79	.62	.04	.03	-.04	-.10
5.	Conformity	3.04	.56	.01	.04	.03	-.05
6.	Social Focus	3.16	.57	.06	.02	.15	.01
7.	Goal/Planning	3.34	.61	-.16	-.06	.11	.06
8.	Solitude	2.86	.63	-.29**	-.05	.01	.01
9.	Risk Taker	2.29	.71	-.04	.01	.09	.04
10.	Deviance	2.08	.75	.02	-.02	.19t	.09
11.	Open-minded	2.20	.65	-.06	-.04	-.06	-.01
12.	Dream-like	2.46	.87	-.16	-.04	.08	.09
13.	Emotional (unorganized)	2.26	.72	.03	.001	.22t	.15
14.	Imagination (colorful)	2.45	.72	.05	.02	.17	.03
15.	Original	2.45	.74	.04	.17	.09	-.01
16.	Negative Emotion	2.09	.63	-.06	-.14	.27*	.14
17.	Pessimism	1.91	.54	-.07	-.02	.20t	.23*
18.	Exaggeration	1.99	.71	-.03	-.01	.26*	.25*
19.	Detail-oriented	2.12	.73	-.02	-.10	.29**	.17
20.	Cognitive Focus (limited)	2.93	1.59	-.09	-.01	-.10	-.11
21.	Problems Identified	2.70	.73	.08	-.03	.13	.12
22.	Discrepancy	3.29	1.15	.03	-.12	.09	-.02
23.	Elaboration	2.42	.80	-.01	-.003	.16	.12
24.	Unusual Combinations	2.34	.61	-.01	.02	.19	.26*
25.	Category Items	12.85	9.36	-.02	.03	.06	.12
26.	Complexity	2.67	.67	-.01	-.002	.20t	.06
27.	Clarity and Coherence	2.99	.58	-.07	.01	.05	-.13
28.	Flexibility, Integration	3.27	.98	.05	-.06	.11	.02
29.	Role Models	3.27	.98	-.01	.02	.16	.08

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 20 (continued)

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to CERTAIN	Physical Attraction	Leadership Ability	Common Sense	Emotional Stability	Sense of Humor	Discipline
FUTURE Self-concept To CERTAIN						
1. Group-based	.24*	.11	.05	.16	.17	.07
2. Social Interest	.28**	.08	.04	.21t	.11	.10
3. Conscientious	.29**	.21*	-.15	.16	.18	.16
4. Independence	-.04	-.07	-.12	-.09	-.27*	-.15
5. Conformity	.27*	.05	-.05	.03	-.04	-.06
6. Social Focus	-.19	-.18	-.10	.04	-.08	-.08
7. Goal/Planning	-.01	-.11	-.11	.08	.03	.001
8. Solitude	.02	-.02	-.07	.09	-.03	-.14
9. Risk Taker	.15	-.08	.05	-.08	-.02	-.05
10. Deviance	.18	-.05	.16	-.04	.04	.05
11. Open-minded	.10	-.16	-.08	-.16	-.20t	-.17
12. Dream-like	.02	-.14	.11	.13	.03	-.002
13. Emotional (unorganized)	.21t	-.05	.10	-.08	.10	-.04
14. Imagination (colorful)	.18	-.06	-.02	-.09	-.10	-.07
15. Original	.23*	.13	.04	.06	.03	.08
16. Negative Emotion	.10	.02	.11	.16	.08	-.13
17. Pessimism	.05	.05	.17	.16	.02	-.09
18. Exaggeration	.20t	.02	-.03	-.10	.05	-.17
19. Detail-oriented	.09	-.16	.11	-.12	-.05	-.06
20. Cognitive Focus (limited)	-.19	-.07	-.14	-.04	-.01	.16
21. Problems Identified	.33**	-.05	.01	-.02	.04	-.06
22. Discrepancy	-.03	.05	.10	.08	.07	.03
23. Elaboration	.33**	-.06	.07	.02	.09	-.07
24. Unusual Combinations	.23*	.05	.12	.03	.06	-.11
25. Category Items	.32***	.17	.08	.14	.16	.09
26. Complexity	.08	-.08	.11	-.10	-.10	-.09
27. Clarity and Coherence	-.08	-.10	-.05	-.08	-.04	-.04
29. Flexibility, Integration	.03	.18	.06	.16	.23*	.16
29. Role Models	.31**	.10	.14	.06	.02	.03

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 21

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to IMPORTANT	M	SD	Intellectual/ academic ability	Social Skills/ Social competence	Artistic and/or Musical ability	Athletic ability
FUTURE Self-concept to IMPORTANT						
1. Group-based	2.92	.96	-.20t	-.09	-.07	-.04
2. Social Interest	2.86	1.05	-.20t	-.08	-.04	-.06
3. Conscientious	5.27	6.20	.14	-.07	-.08	.08
4. Independence	2.79	.62	.17	.12	-.16	.002
5. Conformity	3.04	.56	-.15	-.19	-.03	-.12
6. Social Focus	3.16	.57	-.03	.18	.23*	.08
7. Goal/Planning	3.34	.61	-.21t	-.07	-.02	.19
8. Solitude	2.86	.63	-.14	.04	-.05	.06
9. Risk Taker	2.29	.71	-.15	-.16	-.17	-.06
10. Deviance	2.08	.75	-.04	-.16	-.16	-.05
11. Open-minded 2.20	.65	-.20t	-.26*	-.09	-.04	
12. Dream-like	2.46	.87	-.25*	-.14	-.01	.05
13. Emotional (unorganized)	2.26	.72	-.04	-.14	-.13	.01
14. Imagination (colorful)	2.45	.72	-.23*	-.22*	.05	-.10
15. Original	2.45	.74	-.14	-.18	-.17	.07
16. Negative Emotion	2.09	.63	-.18	-.23*	-.08	.01
17. Pessimism	1.91	.54	-.14	-.24*	-.10	.04
18. Exaggeration	1.99	.71	-.11	-.07	-.01	-.05
19. Detail-oriented	2.12	.73	-.22t	-.25*	.08	-.06
20. Cognitive Focus (limited)	2.93	1.59	-.08	.17	.07	-.07
21. Problems Identified	2.70	.73	.004	-.26*	-.10	-.09
22. Discrepancy	3.29	1.15	.30**	.004	.12	-.13
23. Elaboration	2.42	.80	-.11	-.25*	-.06	-.17
24. Unusual Combinations	2.34	.61	.12	-.02	-.16	-.06
25. Category Items	12.85	9.36	-.02	-.01	-.09	-.09
26. Complexity	2.67	.67	-.19	-.18	-.04	-.13
27. Clarity and Coherence	2.99	.58	-.30**	-.06	.16	.14
28. Flexibility, Integration	3.27	.98	.26*	.03	.11	-.10
29. Role Models	3.27	.98	-.23*	-.25*	-.05	-.15

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 21 (continued)

Means, Standard Deviations, and Intercorrelations for Self-concept Variables with Pelham and Swann's Self-concept Survey as a Covariate

Self-concept Related to IMPORTANT	Physical Attraction	Leadership Ability	Common Sense	Emotional Stability	Sense of Humor	Discipline
FUTURE Self-concept To IMPORTANT						
1. Group-based	.02	-.01	.18	.05	.13	.26*
2. Social Interest	-.01	-.05	.09	.10	.14	.19
3. Conscientious	-.07	.14	.16	.04	.10	.09
4. Independence	-.05	-.04	-.25*	-.02	-.03	-.18
5. Conformity	-.12	-.07	.13	.04	-.05	.07
6. Social Focus	-.06	-.02	-.05	-.04	.05	.07
7. Goal/Planning	-.14	-.10	-.09	-.18	.04	.09
8. Solitude	-.13	-.08	-.003	-.14	.01	-.13
9. Risk Taker	-.12	-.01	.08	-.07	.08	.09
10. Deviance	.09	-.01	.12	-.03	.07	.13
11. Open-minded	-.11	.03	-.07	-.06	.01	-.03
12. Dream-like	-.02	.05	.22t	.04	.01	.07
13. Emotional (unorganized)	-.07	.002	.12	-.03	.19t	.06
14. Imagination (colorful)	-.26*	-.06	-.003	-.07	.08	.05
15. Original	-.02	.12	.12	.06	-.13	.12
16. Negative Emotion	.04	-.10	.10	-.06	.01	-.003
17. Pessimism	.13	-.15	.09	.02	-.12	-.16
18. Exaggeration	-.03	.01	.03	-.20t	-.06	.09
19. Detail-oriented	-.21t	-.05	.13	-.13	.06	.05
20. Cognitive Focus (limited)	.07	.09	-.06	-.06	-.26*	.06
21. Problems Identified	.01	-.18	.07	.04	.22*	.03
22. Discrepancy	-.19	-.08	-.02	.06	-.04	.11
23. Elaboration	-.10	-.19t	.02	.04	.27*	.04
24. Unusual Combinations	.09	-.12	-.09	.09	.14	-.08
25. Category Items	-.04	-.11	.06	-.08	.09	.01
26. Complexity	-.04	-.13	.04	-.17	-.02	.04
27. Clarity and Coherence	-.09	-.05	.001	-.13	.11	-.02
28. Flexibility, Integration	-.09	.02	.05	.11	-.09	.16
29. Role Models	-.07	-.07	.14	-.09	.05	.02

*p ≤ .05 **p ≤ .01 ***p ≤ .001 t = marginally significant

Table 22

Means, Standard Deviations, and Intercorrelations for Creative Tasks and Self-concept Variables

Constructs	Entrepreneurial Creativity 1		Consulting Creativity 2		Marketing Creativity 3	
Social/Nonsocial	Past/Present	Future	Past/Present	Future	Past/Present	Future
Group-based	.004	-.03	-.041	-.094	-.117	-.263*
Social Interest	.041	.157	-.059	-.045	-.082	-.116
Conscientious	.127	-.006	.01	-.152	-.058	-.181
Independence	.107	-.055	-.028	-.028	.028	-.048
Conformity	-.08	-.032	-.133	-.038	-.166	-.181
Focus	.072	.071	.011	.045	.16	.115
Goal/Planning	-.014	-.045	-.018	-.059	-.069	-.226τ
Solitude	-.01	-.148	-.048	-.046	.012	-.231*
Psychodynamic	Past/Present	Future	Past/Present	Future	Past/Present	Future
Risk Taker	.053	.000	.014	.018	-.014	-.128
Deviance	.136	-.04	.136	-.071	.056	-.256*
Open-minded	.031	.069	-.013	-.036	.023	-.007
Dream-like	.01	.034	-.103	-.046	-.001	-.125
Emotional (unorganized)	.083	.077	.002	-.051	-.073	-.058
Imagination (colorful)	.122	.104	-.012	-.119	-.002	-.066
Original	.10	.147	.103	-.144	.17	-.186
Negative Emotion	.178τ	.015	.24*	-.014	.037	-.01
Pessimism	.038	-.019	.119	.068	-.042	.116
Exaggeration	.041	.003	.038	.025	-.126	-.033
Detail-oriented	.034	.051	-.097	.034	-.038	.057

Table 22 (continued)

Constructs	Creativity 1		Creativity 2		Creativity 3	
Cognitive	Past/Present	Future	Past/Present	Future	Past/Present	Future
Focused (limited)	.001	.05	.055	.045	.062	.101
Problems Identified	.094	.049	-.077	-.058	-.097	-.013
Discrepancy	.018	-.054	-.047	-.166	.168	.143
Elaboration	.054	.06	-.114	-.034	-.107	-.007
Unusual Combinations	-.001	-.012	-.053	.029	.046	.084
Category Items	.05	-.005	-.117	-.055	-.225*	-.105
Complexity	.004	-.195t	-.079	.007	-.041	-.13
Clarity and Coherence	-.084	-.236*	.066	-.089	.048	-.033
Flexibility, Integration	-.092	-.015	-.08	-.197τ	.033	.057
Role Models	-.029	-.062	-.112	-.066	-.13	-.058

*p<.05 **p<.01 τ = marginally significant

Table 23

Means, Standard Deviations, and Intercorrelations for Total Creativity and Self-concept Variables

Constructs	M	SD	Creativity	M	SD	Creativity
N=103						N=83
Social/Nonsocial			Past/Present			Future
Group-based	3.06	.97	-.043	2.92	.96	-.168
Social Interest	3.10	1.03	-.048	2.86	1.05	-.051
Conscientious	4.58	3.21	.038	5.27	6.20	-.132
Independence	2.77	.67	.062	2.79	.62	-.071
Conformity	3.17	.69	-.154	3.04	.56	-.092
Focus	3.24	.63	.095	3.16	.57	.069
Goal/Planning	3.24	.73	-.059	3.34	.61	-.157
Solitude	2.58	.66	-.025	2.86	.63	-.183
Psychodynamic			Past/Present		N=84	Future
Risk Taker	2.66	.77	.026	2.29	.71	-.055
Deviance	2.25	.68	.173τ	2.08	.75	-.152
Open-minded	2.64	.76	.038	2.20	.65	-.009
Dream-like	2.65	.71	-.023	2.46	.87	-.072
Emotional (unorganized)	2.52	.78	-.019	2.26	.72	-.016
Imagination (colorful)	2.55	.77	.051	2.45	.72	-.083
Original	2.52	.87	.18τ	2.45	.74	-.076
Negative Emotion	2.29	.60	.198*	2.09	.63	-.003
Pessimism	2.05	.55	.017	1.91	.54	.086
Exaggeration	2.14	.77	-.032	1.99	.71	-.028

Table 23 (continued)

Detail-oriented	2.38	.72	-.041	2.12	.73	.059
Constructs						Total Creativity
N=103 Cognitive	M	SD	Past/Present	M	SD	N=84 Future
Focused (limited)	3.01	1.02	.06	2.93	1.59	.093
Problems Identified	3.03	.84	-.058	2.70	.73	-.035
Discrepancy N=83	3.40	1.11	.093	3.29	1.15	-.012 N=83
Elaboration	2.66	.92	-.084	2.42	.80	-.014
Unusual Combinations	2.47	.66	-.011	2.34	.61	.023
Category Items	10.83	7.17	-.117	12.85	9.36	-.078
Complexity	2.66	.65	-.048	2.67	.67	-.144
Clarity and Coherence	3.11	.68	.025	2.99	.58	-.122
Flexibility, N=85 Integration	3.42	1.06	-.039	3.27	.98	-.033 N=83
Role Models	2.26	.89	-.096	2.14	.98	-.074

*p<.05 **p<.01 τ = marginally significant

Table 24

REGRESSION ANALYSES OF SELF-CONCEPT BASED ON MODELS WITH VERBAL IQ COVARIATE CONTROL

Creative Task 1: Entreprenuerial (Starting your own business)

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.37	.32	.28
R^2	.14	.10	.08
Adjusted R^2	.03	-.05	-.11
Adjusted Multiple R	.17		
Std. Error of Estimate	1.77	1.85	1.89
ΔR^2	.13	.10	.08
ΔF	1.44	.69	.45

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.39	.30	.38
R^2	.16	.09	.15
Adjusted R^2	.02	-.12	-.03
Adjusted Multiple R	.14		
Std. Error of Estimate	1.79	1.91	1.83
ΔR^2	.15	.09	.14
ΔF	1.24	.46	.91

Creative Task 2: Consulting (Organizational Change and Development)

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.38	.53	.35
R^2	.15	.28	.13
Adjusted R^2	.04	.16	-.05
Adjusted Multiple R	.20	.40	
Std. Error of Estimate	1.68	1.57	1.76
ΔR^2	.04	.18	.02
ΔF	.48	1.64	.15

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.39	.42	.41
R^2	.15	.18	.17
Adjusted R^2	.01	-.01	-.004
Adjusted Multiple R	.10		
Std. Error of Estimate	1.70	1.72	1.72
ΔR^2	.05	.07	.07
ΔF	.41	.43	.42

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 24 (continued)

Creative Task 3: Marketing/Advertising (Advertisement for 3-D television)

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.37	.43	.45
R^2	.14	.19	.21
Adjusted R^2	.03	.05	.04
Adjusted Multiple R	.17	.23	.20
Std. Error of Estimate	1.86	1.84	1.85
ΔR^2	.07	.12	.13
ΔF	.73	.94	.90

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.48	.52	.46
R^2	.23	.27	.21
Adjusted R^2	.10	.11	.05
Adjusted Multiple R	.32	.33	.22
Std. Error of Estimate	1.79	1.79	1.85
ΔR^2	.16	.20	.14
ΔF	1.40	1.34	.93

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 25

REGRESSION ANALYSES OF SELF-CONCEPT BASED ON MODELS WITHOUT VERBAL IQ COVARIATE CONTROL

Creative Task 1: Entreprenuerial (Starting your own business)

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.37	.30	.28
R^2	.14	.09	.08
Adjusted R^2	.05	-.03	-.07
Adjusted Multiple R	.22		
Std. Error of Estimate	1.76	1.83	1.87
ΔR^2	.14	.09	.08
ΔF	1.64	.75	.52

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.39	.28	.38
R^2	.15	.08	.15
Adjusted R^2	.05	-.09	.01
Adjusted Multiple R	.22		.10
Std. Error of Estimate	1.76	1.88	1.79
ΔR^2	.15	.08	.15
ΔF	1.48	.47	1.08

Creative Task 2: Consulting (Organizational Change and Development)

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.22	.38	.21
R^2	.05	.15	.05
Adjusted R^2	-.04	.03	-.11
Adjusted Multiple R	.21	.17	.33
Std. Error of Estimate	1.75	1.69	1.8
ΔR^2	.05	.15	.05
ΔF	.55	1.27	.30

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.20	.27	.27
R^2	.04	.07	.07
Adjusted R^2	-.08	-.09	-.07
Adjusted Multiple R			
Std. Error of Estimate	1.78	1.79	1.77
ΔR^2	.04	.07	.07
ΔF	.32	.45	.50

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 25 (continued)

Creative Task 3: Marketing/Advertising (Advertisement for 3-D television)

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.27	.32	.38
R^2	.07	.1	.15
Adjusted R^2	-.02	-.03	.001
Adjusted Multiple R			.03
Std. Error of Estimate	1.91	1.92	1.89
ΔR^2	.07	.1	.15
ΔF	.76	.8	1.01

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.38	.46	.36
R^2	.15	.21	.13
Adjusted R^2	.03	.06	-.02
Adjusted Multiple R	.17	.25	
Std. Error of Estimate	1.86	1.84	1.91
ΔR^2	.15	.21	.13
ΔF	1.31	1.4	.89

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 26

REGRESSION ANALYSES OF SELF-CONCEPT BASED ON TOTAL CREATIVITY WITHOUT VERBAL IQ

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.32	.42	.26
R^2	.10	.17	.07
Adjusted R^2	.02	.06	-.08
Adjusted Multiple R	.14	.25	
Std. Error of Estimate	4.30	4.21	4.51
ΔR^2	.10	.17	.07
Δ F	1.20	1.54	.46

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.30	.28	.26
R^2	.09	.08	.07
Adjusted R^2	-.02	-.08	-.08
Adjusted Multiple R			
Std. Error of Estimate	4.38	4.51	4.51
ΔR^2	.09	.08	.07
Δ F	.83	.49	.46

REGRESSION ANALYSES OF SELF-CONCEPT BASED ON TOTAL CREATIVITY WITH VERBAL IQ

PAST/PRESENT SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.42	.53	.38
R^2	.18	.28	.15
Adjusted R^2	.08	.16	-.03
Adjusted Multiple R	.28	.40	
Std. Error of Estimate	4.17	3.99	4.40
ΔR^2	.09	.19	.06
Δ F	1.03	1.71τ	.38

FUTURE SELF-CONCEPT	Social/Nonsocial Model	Psychodynamic/ Clinical Model	Cognitive Model
R	.43	.42	.39
R^2	.19	.18	.15
Adjusted R^2	.05	-.007	-.022
Adjusted Multiple R	.22		
Std. Error of Estimate	4.22	4.35	4.39
ΔR^2	.10	.09	.065
Δ F	.85	.54	.41

* $p < .05$ ** $p < .01$ *** $p < .001$ τ = marginally significant

Table 27 : Blocked Regression: PAST/PRESENT Social/Nonsocial Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	7.88**
Step 2	Group-based	.09	.09	1.03
	Social Interest	.07		
	Conscientious	.26τ		
	Independence	.17		
	Conformity	-.43*		
	Focus	.14		
	Goal/Planning	.009		
	Solitude	-.107		

Overall R^2 = .18 *p<.05 **p<.01 τ = marginally significant
R = .43
Adjusted Multiple R = .42

Blocked Regression: PAST/PRESENT Psychodynamic/Clinical Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	7.88**
Step 2	Risk-taker	-.003	.19	1.71τ
	Deviance	.15		
	Open-minded	-.15		
	Dream-like	-.20		
	Emotional (unorganized)	-.001		
	Imagination (colorful)	.23		
	Original	.34*		
	Negative Emotion	.38*		
	Pessimism	-.15		
	Exaggeration	-.21		
	Detail-oriented	-.19		

Overall R^2 = .28 *p<.05 **p<.01 τ = marginally significant
R= .53
Adjusted Multiple R = .40

Table 27 (continued)
Blocked Regression: PAST/PRESENT Cognitive Problem-solving Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.09*
Step 2	Focused (limited)	.12	.06	.38
	Problems Identified	-.04		
	Discrepancy	.34		
	Elaboration	.16		
	Unusual Combinations	-.01		
	Category items	-.13		
	Complexity	-.01		
	Clarity and Coherence	.03		
	Flexibility integration	-.30		
	Role Models	-.04		

Overall R^2 = .15 *p<.05 **p<.01 τ = marginally significant
R = .38
Adjusted Multiple R = .39

Table 27 (continued): Blocked Regression: FUTURE Social/Nonsocial Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98*
Step 2	Group-based	-.42	.10	.85
	Social Interest	.27		
	Conscientious	-.11		
	Independence	.05		
	Conformity	.07		
	Focus	-.02		
	Goal/Planning	.13		
	Solitude	-.23		

Overall R^2 = .19 *p<.05 **p<.01 τ = marginally significant

Blocked Regression: FUTURE Psychodynamic Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2	Risk-taker	-.18	.09	.54
	Deviance	-.26		
	Open-minded	.06		
	Dream-like	.03		
	Emotional (unorganized)	.01		
	Imagination (colorful)	-.05		
	Original	.13		
	Negative Emotion	.009		
	Pessimism	.17		
	Exaggeration	.02		
	Detail-oriented	.22		

Overall R^2 = .18 *p<.05 **p<.01 τ = marginally significant

Table 27 (continued)

Blocked Regression: FUTURE Cognitive Problem-solving Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2	Focused (limited)	.15	.07	.41
	Problems Identified	.06		
	Discrepancy	.06		
	Elaboration	.09		
	Unusual Combinations	.06		
	Category items	-.14		
	Complexity	-.22		
	Clarity and Coherence	-.06		
	Flexibility integration	-.09		
	Role Models	.01		

Overall R^2 = .16 *p<.05 **p<.01 τ = marginally significant

Table 28

Blocked Regression: PAST/PRESENT Social/Nonsocial Model (First) with Psychodynamic Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	7.88**
Step 2 Social/ Nonsocial Model	Group-based	.09	.09	1.03
	Social Interest	.07		
	Conscientiousness	.26t		
	Independence	.17		
	Conformity	-.43*		
	Focus	.14		
	Goal/Planning	.009		
	Solitude	-.107		
Step 3 Psycho-dynamic Model	Risk-taker	.00	.19	1.69t
	Deviance	.17		
	Open-minded	-.14		
	Dream-like	-.20		
	Emotional (unorganized)	-.13		
	Imagination (colorful)	.26		
	Original	.31t		
	Negative Emotion	.33*		
	Pessimism	-.04		
	Exaggeration	-.27		
	Detail-oriented	-.09		

Overall $R^2 = .37$

R = .61

Adjusted Multiple R = .40

Table 28 (continued)
Blocked Regression: PAST/PRESENT Psychodynamic Model (First) with Social/Nonsocial Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	7.88**
Step 2 Psycho-Dynamic Model	Risk-taker	-.003	.19	1.71τ
	Deviance	.15		
	Open-minded	-.15		
	Dream-like	-.20		
	Emotional (unorganized)	-.001		
	Imagination (colorful)	.23		
	Original	.34*		
	Negative Emotion	.34*		
	Pessimism	-.15		
	Exaggeration	-.21		
	Detail-oriented	-.19		
Step 3 Social/ Nonsocial Model	Group-based	-.02	.09	1.09
	Social Interest	.09		
	Conscientious	.34*		
	Independence	.19		
	Conformity	-.31		
	Focus	.17		
	Goal/Planning	-.05		
	Solitude	-.15		

Overall R^2 = .37

*p<.05 **p<.01 τ = marginally significant

Table 28 (continued)

Blocked Regression: PAST/PRESENT Social/Nonsocial Model (First) with Cognitive Problem-solving Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2 Social/ Nonsocial Model	Group-based	.09	.09	.77
	Social Interest	.07		
	Conscientious	.26		
	Independence	.17		
	Conformity	-.43*		
	Focus	.14		
	Goal/Planning	.009		
	Solitude	-.107		
Step 3 Cognitive Model	Focused (limited)	.12	.06	.38
	Problems Identified	.03		
	Discrepancy	.34		
	Elaboration	.17		
	Unusual Combinations	-.02		
	Category Items	-.29		
	Complexity	-.02		
	Clarity and Coherence	.06		
	Flexibility, Integration	-.31		
	Role Models	-.006		

Overall R^2 = .24 *p<.05 **p<.01 τ = marginally significant

Table 28 (continued)

Blocked Regression: PAST/PRESENT Cognitive Problem-solving Model (First) with Social/Nonsocial Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2 Cognitive Model	Focused (limited)	.11	.06	.38
	Problems Identified	-.04		
	Discrepancy	.34		
	Elaboration	.16		
	Unusual Combinations	-.006		
	Category Items	-.13		
	Complexity	-.005		
	Clarity and Coherence	.03		
	Flexibility, Integration	-.30		
	Role Models	-.04		
Step 3 Social/ Nonsocial Model	Group-based	.23	.09	.72
	Social Interest	.08		
	Conscientious	.30		
	Independence	.15		
	Conformity	-.50*		
	Focus	.10		
	Goal/Planning	.02		
	Solitude	-.08		

Overall R^2 = .24 *p<.05 **p<.01 τ = marginally significant

Table 28 (continued)

Blocked Regression: PAST/PRESENT Psychodynamic Model (First) with Cognitive Problem-solving Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2 Psycho-Dynamic Model	Risk-taker	-.003	.19	1.26
	Deviance	.15		
	Open-minded	-.15		
	Dream-like	-.20		
	Emotional (unorganized)	-.001		
	Imagination (colorful)	.23		
	Original	.34τ		
	Negative Emotion	.34τ		
	Pessimism	-.15		
	Exaggeration	-.21		
	Detail-oriented	-.19		
Step 3 Cognitive Model	Focused (limited)	.15	.07	.46
	Problems Identified	-.01		
	Discrepancy	.27		
	Elaboration	.08		
	Unusual Combinations	-.07		
	Category Items	-.21		
	Complexity	.04		
	Clarity and Coherence	.10		
	Flexibility, Integration	-.28		
	Role Models	-.004		

Overall R^2 = .35 *p<.05 **p<.01 τ = marginally significant

Table 28 (continued)

Blocked Regression: PAST/PRESENT Cognitive Problem-solving Model (First) with Psychodynamic Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2 Cognitive Model	Focused (limited)	.11	.06	.38
	Problems Identified	-.04		
	Discrepancy	.34		
	Elaboration	.16		
	Unusual Combinations	-.006		
	Category Items	-.13		
	Complexity	-.005		
	Clarity and Coherence	.03		
	Flexibility, Integration	-.30		
	Role Models	-.04		
Step 3 Psycho-Dynamic Model	Risk-taker	-.001	.20	1.20
	Deviance	.14		
	Open-minded	-.18		
	Dream-like	-.14		
	Emotional (unorganized)	.04		
	Imagination (colorful)	.22		
	Original	.33		
	Negative Emotion	.40*		
	Pessimism	-.15		
	Exaggeration	-.13		
	Detail oriented	-.21		

Overall R^2 = .35 *p<.05 **p<.01 τ = marginally significant

Table 28 (continued)

Blocked Regression: PAST/PRESENT - All three Models

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2 Social/ Nonsocial Models	Group-based	.09	.09	.77
	Social Interest	.07		
	Conscientious	.26		
	Independence	.17		
	Conformity	-.43*		
	Focus	.14		
	Goal/Planning	.009		
	Solitude	-.107		
Step 3 Psycho-dynamic Model	Risk-taker	.00	.19	1.69τ
	Deviance	.19		
	Open-minded	-.14		
	Dream-like	-.20		
	Emotional (unorganized)	-.13		
	Imagination (colorful)	.26		
	Original	.31		
	Negative Emotion	.33τ		
	Pessimism	-.04		
	Exaggeration	-.27		
	Detail-oriented	-.09		
Step 4 Cognitive Model	Focused (limited)	.22	.08	.47
	Problems Identified	.07		
	Discrepancy	.15		
	Elaboration	.13		
	Unusual Combinations	-.01		
	Category Items	-.46		
	Complexity	-.05		
	Clarity and Coherence	.14		
	Flexibility, Integration	-.23		
	Role Models	.11		

Overall R^2 = .45 *p<.05 **p<.01 τ = marginally significant

Table 29: Blocked Regression: FUTURE Social/Nonsocial Model (First) with Psychodynamic Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98*
Step 2 Social/ Nonsocial Model	Group-based	-.42τ	.10	.85
	Social Interest	.27		
	Conscientious	-.12		
	Independence	-.05		
	Conformity	.07		
	Focus	-.02		
	Goal/Planning	.13		
	Solitude	-.23		
Step 3 Psycho-dynamic Model	Risk-taker	.01	.09	.52
	Deviance	-.23		
	Open-minded	.02		
	Dream-like	.15		
	Emotional (unorganized)	-.14		
	Imagination (colorful)	-.16		
	Original	.19		
	Negative Emotion	.05		
	Pessimism	.09		
	Exaggeration	.25		
	Detail-oriented	.17		

Overall R^2 = .28 *p<.05 **p<.01 τ = marginally significant

Table 29: Blocked Regression: FUTURE Psychodynamic Model (First) with Social/Nonsocial Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98*
Step 2 Psycho-dynamic Model	Risk-taker	-18	.09	.52
	Deviance	-.26		
	Open-minded	.06		
	Dream-like	.03		
	Emotional (unorganized)	.01		
	Imagination (colorful)	-.05		
	Original	.13		
	Negative Emotion	.01		
	Pessimism	.17		
	Exaggeration	.02		
	Detail-oriented	.22		
Step 3 Social/ Nonsocial Model	Group-based	-.52τ	.10	.77
	Social Interest	.25		
	Conscientious	-.18		
	Independence	.03		
	Conformity	.08		
	Focus	-.08		
	Goal/Planning	.09		
	Solitude	-.18		

Overall R^2 = .28

*p<.05 **p<.01 τ = marginally significant

Table 29 (continued)

Blocked Regression: FUTURE Social/Nonsocial Model (First) with Cognitive Problem-solving Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98*
Step 2 Social/ Nonsocial Model	Group-based	-.42τ	.10	.85
	Social Interest	.27		
	Conscientious	-.11		
	Independence	-.05		
	Conformity	.07		
	Focus	-.02		
	Goal/Planning	.13		
	Solitude	-.23		
Step 3 Cognitive Model	Focused (limited) Problems Identified	.16	.05	.32
	Discrepancy	-.13		
	Elaboration	-.09		
	Unusual Combinations	.17		
	Category Items	.06		
	Complexity	-.05		
	Clarity and Coherence	-.20		
	Flexibility, Integration	-.12		
	Role Models	.04		
		.14		

Overall R^2 = .24 *p<.05 **p<.01 τ = marginally significant

Table 29 (continued)

Blocked Regression: FUTURE Cognitive Problem-solving Model (First) with Social/Nonsocial Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98*
Step 2 Cognitive Model	Focused (limited)	.15	.07	.40
	Problems Identified	.06		
	Discrepancy	.06		
	Elaboration	.09		
	Unusual Combinations	.06		
	Category Items	-.14		
	Complexity	-.22		
	Clarity and Coherence	-.06		
	Flexibility, Integration	-.09		
	Role Models	.01		
Step 3 Social/ Nonsocial Model	Group-based	-.42	.09	.66
	Social Interest	.12		
	Conscientious	-.13		
	Independence	-.06		
	Conformity	.14		
	Focus	-.10		
	Goal/Planning	.23		
	Solitude	-.26		

Overall R^2 = .24 *p<.05 **p<.01 τ = marginally significant

Table 29 (continued)
Blocked Regression: FUTURE Psychodynamic Model (First) with Cognitive Problem-solving Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2 Psycho-dynamic Model	Risk-taker	-.18	.09	.54
	Deviance	-.26		
	Open-minded	.06		
	Dream-like	.03		
	Emotional (unorganized)	.01		
	Imagination (colorful)	-.05		
	Original	.13		
	Negative Emotion	.01		
	Pessimism	.17		
	Exaggeration	.02		
	Detail-oriented	.22		
Step 3 Cognitive Model	Focused (limited)	.34*	.16	1.07
	Problems Identified	.07		
	Discrepancy	-.07		
	Elaboration	.09		
	Unusual Combinations	-.05		
	Category Items	.01		
	Complexity	-.38*		
	Clarity and Coherence	-.19		
	Flexibility, Integration	-.13		
	Role Models	-.34		

Overall R^2 = .34 *p<.05 **p<.01 τ = marginally significant

Table 29 (continued)
Blocked Regression: FUTURE Cognitive Problem-solving Model (First) with Psychodynamic Model

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08*
Step 2 Cognitive Model	Focused (limited)	.15	.07	.41
	Problems Identified	.06		
	Discrepancy	.06		
	Elaboration	.09		
	Unusual Combinations	.06		
	Category Items	-.14		
	Complexity	-.22		
	Clarity and Coherence	-.06		
	Flexibility, Integration	-.09		
	Role Models	.01		
Step 3 Psycho-dynamic Model	Risk-taker	-.11	.19	1.14
	Deviance	-.13		
	Open-minded	.13		
	Dream-like	-.11		
	Emotional (unorganized)	.07		
	Imagination (colorful)	-.03		
	Original	.20		
	Negative Emotion	.09		
	Pessimism	.19		
	Exaggeration	.03		
	Detail-oriented	.58*		

Overall R^2 = .34 *p<.05 **p<.01 τ = marginally significant

Table 29 (continued)
Blocked Regression: FUTURE - All three Models

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98*
Step 2 Social/ Nonsocial Model	Group-based	-.42τ	.10	.85
	Social Interest	.27		
	Conscientious	-.11		
	Independence	-.05		
	Conformity	.07		
	Focus	-.02		
	Goal/Planning	.13		
	Solitude	-.23		
Step 3 Psycho-dynamic Model	Risk-taker	.01	.09	.52
	Deviance	-.23		
	Open-minded	.02		
	Dream-like	.15		
	Emotional (unorganized)	-.14		
	Imagination (colorful)	-.16		
	Original	.19		
	Negative Emotion	.05		
	Pessimism	.09		
	Exaggeration	.25		
	Detail-oriented	.17		
Step 4 Cognitive Model	Focused (limited)	.41*	.15	.88
	Problems Identified	-.09		
	Discrepancy	-.19		
	Elaboration	.16		
	Unusual Combinations	-.04		
	Category Items	.06		
	Complexity	-.42τ		
	Clarity and Coherence	-.21		
	Flexibility, Integration	.01		
	Role Models	-.20		

Overall R^2 = .43 *p<.05 **p<.01 τ = marginally significant

Table 30
Regressions of PAST/PRESENT Self-concept Models on Performance Measures of Originality & Quality

	Entrepreneurial		Consulting		Marketing	
	Originality	Quality	Originality	Quality	Originality	Quality
PAST/PRESENT						
Verbal IQ + Social:						
Multiple R	.34	.36	.30	.42	.30	.44
Adjusted multiple R	.09	.17		.28		.31
Significance	.98	.32	.02	.002	.05	.01
Significance of Change	.31	.26	.98	.64	.91	.23
Verbal IQ + Psychodynamic:						
Multiple R	.30	.36	.47	.55	.34	.52
Adjusted multiple R			.31	.43		.38
Significance	.98	.32	.02	.002	.05	.01
Significance of Change	.76	.54	.23	.07	.89	.08
Verbal IQ + Cognitive:						
Multiple R	.33	.30	.28	.40	.38	.47
Adjusted multiple R						.25
Significance	.98	.38	.04	.006	.08	.03
Significance of Change	.75	.92	1.0	.982	.794	.43
Verbal IQ + Social + Psychodynamic:						
Multiple R	.49	.49	.49	.61	.40	.59
Adjusted multiple R			.07	.42		.38
Significance	.98	.32	.02	.002	.05	.01
Significance of Change 1	.31	.26	.58	.64	.91	.23
Significance of Change 2	.51	.64	.45	.07	.91	.18
Verbal IQ + Psychodynamic + Social:						
Multiple R	.49	.49	.49	.61	.40	.59
Adjusted multiple R			.07	.42		.38
Significance	.98	.32	.02	.002	.05	.01
Significance of Change 1	.76	.54	.23	.07	.89	.08
Significance of Change 2	.17	.38	.99	.52	.92	.44
Verbal IQ + Social + Cognitive:						
Multiple R	.45	.46	.35	.47	.44	.56
Adjusted multiple R						.18
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.52	.47	.99	.79	.96	.44
Significance of Change 2	.87	.92	.99	.99	.82	.61
Verbal IQ + Psychodynamic + Cognitive:						
Multiple R	.43	.45	.55	.64	.45	.64
Adjusted multiple R				.31		.31
Significance	.98	.37	.04	.006	.08	.03
Significance of Change 1	.90	.76	.48	.24	.96	.26
Significance of Change 2	.90	.94	.89	.71	.89	.48

Table 30 (continued)
Regressions of PAST/PRESENT Self-concept Models on Performance Measures of Originality & Quality

	Entrepreneurial		Consulting		Marketing	
	Originality	Quality	Originality	Quality	Originality	Quality
Verbal IQ + Cognitive + Psychodynamic:						
Multiple R	.43	.45	.55	.64	.45	.64
Adjusted multiple R				.31		.31
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.75	.92	1.00	.98	.79	.43
Significance of Change 2	.97	.83	.29	.13	.98	.33
Verbal IQ + Social + Psychodynamic + Cognitive:						
Multiple R	.54	.55	.61	.68	.51	.69
Adjusted multiple R						.12
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.52	.47	.99	.79	.96	.44
Significance of Change 2	.77	.85	.63	.27	.97	.46
Significance of Change 3	.98	.97	.69	.86	.89	.65
Verbal IQ + Social + Cognitive + Psychodynamic:						
Multiple R	.54	.55	.61	.68	.51	.69
Adjusted multiple R						.12
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.52	.47	.99	.79	.96	.44
Significance of Change 2	.87	.92	.99	.99	.82	.61
Significance of Change 3	.95	.93	.29	.22	.98	.53
Verbal IQ + Psychodynamic + Social + Cognitive:						
Multiple R	.54	.55	.61	.68	.51	.69
Adjusted multiple R						.12
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.90	.76	.48	.24	.96	.26
Significance of Change 2	.40	.63	.99	.75	.97	.68
Significance of Change 3	.98	.97	.69	.86	.89	.65
Verbal IQ + Psychodynamic + Cognitive + Social:						
Multiple R	.54	.55	.61	.68	.51	.69
Adjusted multiple R						.12
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.90	.76	.48	.24	.96	.12
Significance of Change 2	.90	.94	.86	.71	.89	.21
Significance of Change 3	.70	.76	.86	.89	.95	.46

Table 30 (continued)
Regressions of PAST/PRESENT Self-concept Models on Performance Measures of Originality & Quality

	Entrepreneurial		Consulting		Marketing	
	Originality	Quality	Originality	Quality	Originality	Quality
Verbal IQ + Cognitive + Social + Psychodynamic:						
Multiple R	.54	.55	.61	.68	.51	.69
Adjusted Multiple R						.12
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.75	.92	1.00	.98	.79	.43
Significance of Change 2	.71	.54	.96	.88	.96	.63
Significance of Change 3	.95	.93	.29	.22	.98	.53
Verbal IQ + Cognitive + Psychodynamic + Social:						
Multiple R	.54	.55	.61	.68	.51	.69
Adjusted Multiple R						.12
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.75	.92	1.00	.98	.79	.43
Significance of Change 2	.97	.83	.28	.13	.98	.33
Significance of Change 3	.70	.76	.86	.89	.95	.82

Table 30 (continued)
Regressions of FUTURE Self-concept Models on Performance Measures of Originality & Quality

	Entrepreneurial		Consulting		Marketing	
	Originality	Quality	Originality	Quality	Originality	Quality
FUTURE						
Verbal IQ + Social:						
Multiple R	.45	.38	.32	.44	.44	.46
Adjusted multiple R	.45			.24	.25	.28
Significance	.98	.38	.04	.006	.08	.03
Significance of Change	.10	.44	.97	.73	.29	.34
Verbal IQ + Psychodynamic:						
Multiple R	.34	.24	.39	.43	.56	.44
Adjusted multiple R					.40	.09
Significance	.98	.38	.04	.006	.08	.03
Significance of Change	.79	.99	.92	.95	.06	.73
Verbal IQ + Cognitive:						
Multiple R	.44	.34	.34	.45	.46	.44
Adjusted multiple R	.18			.19	.23	.18
Significance	.98	.38	.04	.006	.08	.03
Significance of Change	.25	.76	.98	.83	.35	.62
Verbal IQ + Social + Psychodynamic:						
Multiple R	.49	.42	.50	.59	.68	.55
Adjusted multiple R				.22	.46	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.10	.44	.97	.73	.29	.34
Significance of Change 2	.99	.99	.66	.51	.06	.88
Verbal IQ + Psychodynamic + Social:						
Multiple R	.49	.42	.50	.59	.68	.55
Adjusted multiple R				.22	.46	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.80	.99	.92	.95	.07	.75
Significance of Change 2	.51	.61	.65	.24	.21	.58
Verbal IQ + Social + Cognitive:						
Multiple R	.59	.51	.40	.53	.59	.53
Adjusted multiple R	.25				.26	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.10	.44	.97	.73	.29	.34
Significance of Change 2	.51	.69	.98	.84	.43	.89
Verbal IQ + Psychodynamic + Cognitive:						
Multiple R	.70	.55	.47	.58	.69	.55
Adjusted multiple R	.48			.05	.46	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.79	.99	.92	.95	.06	.73
Significance of Change 2	.004	.22	.93	.44	.24	.77

Table 30 (continued)
Regressions of FUTURE Self-concept Models on Performance Measures of Originality & Quality

	Entrepreneurial		Consulting		Marketing	
	Originality	Quality	Originality	Quality	Originality	Quality
Verbal IQ + Cognitive + Psychodynamic:						
Multiple R	.70	.54	.47	.58	.69	.55
Adjusted multiple R	.48			.04	.46	
Significance	.98	.39	.04	.006	.08	.03
Significance of Change 1	.25	.76	.98	.83	.35	.62
Significance of Change 2	.03	.53	.85	.61	.05	.85
Verbal IQ + Social + Psychodynamic + Cognitive:						
Multiple R	.74	.62	.58	.69	.77	.62
Adjusted multiple R	.38			.14	.47	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.10	.44	.97	.73	.29	.34
Significance of Change 2	.99	.99	.66	.51	.06	.88
Significance of Change 3	.04	.38	.93	.57	.41	.92
Verbal IQ + Social + Cognitive + Psychodynamic:						
Multiple R	.74	.62	.58	.69	.77	.62
Adjusted multiple R	.38			.14	.47	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.10	.44	.97	.73	.29	.34
Significance of Change 2	.57	.69	.98	.84	.43	.89
Significance of Change 3	.23	.82	.65	.33	.09	.91
Verbal IQ + Psychodynamic + Social + Cognitive:						
Multiple R	.74	.62	.58	.69	.77	.62
Adjusted multiple R	.38			.14	.47	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.80	.99	.92	.95	.07	.75
Significance of Change 2	.51	.61	.65	.24	.21	.58
Significance of Change 3	.04	.38	.93	.57	.41	.92
Verbal IQ + Psychodynamic + Cognitive + Social:						
Multiple R	.74	.62	.58	.69	.77	.62
Adjusted multiple R	.38			.14	.47	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.80	.99	.92	.95	.07	.75
Significance of Change 2	.005	.24	.94	.45	.20	.78
Significance of Change 3	.87	.74	.71	.37	.38	.81

Table 30 (continued)
Regressions of FUTURE Self-concept Models on Performance Measures of Originality & Quality

	Entrepreneurial		Consulting		Marketing	
	Originality	Quality	Originality	Quality	Originality	Quality
Verbal IQ + Cognitive + Social + Psychodynamic:						
Multiple R	.74	.62	.58	.69	.77	.62
Adjusted Multiple R	.38			.14	.47	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.26	.77	.98	.83	.36	.63
Significance of Change 2	.29	.40	.96	.75	.37	.69
Significance of Change 3	.23	.82	.65	.33	.09	.91
Verbal IQ + Cognitive + Psychodynamic + Social:						
Multiple R	.74	.62	.58	.69	.77	.62
Adjusted Multiple R	.38			.14	.47	
Significance	.98	.38	.04	.006	.08	.03
Significance of Change 1	.26	.77	.98	.83	.36	.63
Significance of Change 2	.03	.55	.86	.62	.06	.86
Significance of Change 3	.87	.74	.71	.37	.38	.81

Table 31

Stepwise Regression: PAST/PRESENT Self-concept Combination Predicting Total Creativity Across all Three Tasks (Entrepreneurial, Consulting, Marketing/Advertising)

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	6.08**
Step 2	Conscientious	.29	.28	2.08*
	Conformity	-.35		
	Open-minded	-.25		
	Original	.37*		
	Negative Emotion	.35**		
	Focus	.22		
	Discrepancy	.31		
	Category Items	-.34*		
	Clarity	.15		
	Flexibility	-.32		

Overall R^2 = .37 *p<.05 **p<.01 ***p<.001 τ = marginally significant
R = .61
Adjusted Multiple R = .47

Table 31 (continued)

Stepwise Regression: Most Significant PAST/PRESENT Self concept variables Predicting Total Creativity Across all Three Tasks (Entrepreneurial, Consulting, Marketing/Advertising)

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	7.88**
Step 2	Original	.21*	.17	4.53**
	Negative Emotion	.38***		
	Focus (limited)	.21*		
	Category Items	-.25*		

Overall R^2 = .26 *p<.05 **p<.01 ***p<.001 τ = marginally significant
R = .51
Adjusted Multiple R = .46

Table 32

Stepwise Regression: Projected FUTURE Self-concept Combination Predicting Total Creativity Across all Three Tasks (Entrepreneurial, Consulting, Marketing/Advertising)

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98**
Step 2	Group-based	-.33*	.29	1.93*
	Conscientious	-.16		
	Conformity	.14		
	Focus	-.12		
	Original	.26τ		
	Negative Emotion	.30*		
	Detail-oriented	.54**		
	Focus (limited)	.36**		
	Discrepancy	-.15		
	Complexity	-.42**		
	Clarity	-.18		
	Role Models	-.16		

Overall R^2 = .38 *p<.05 **p<.01 ***p<.001 τ = marginally significant
R= .62
Adjusted Multiple R = .46

Table 32 (continued)

Stepwise Regression: Most Significant Projected FUTURE Self-concept Combination Predicting Total Creativity Across all Three Tasks (Entrepreneurial, Consulting, Marketing/Advertising)

Variable Predictors		BETA	ΔR^2	ΔF
Step 1	Verbal IQ	.30	.09	5.98**
Step 2	Group-based	-.21τ	.17	3.24**
	Detail-oriented	.43**		
	Focus (limited)	.22τ		
	Complexity	-.33*		

Overall R^2 = .26 *p<.05 **p<.01 ***p<.001 τ = marginally significant
R = .51
Adjusted Multiple R = .44