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An Examination of the 16PF Global Factors as Predictors of the Scale of Accurate Personality Prediction (SAPP)

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An Examination of the 16PF Global Factors as Predictors of the Scale of Accurate
Personality Prediction (SAPP)

By

Maria Christina Mandina

Bachelor of Science
Psychology
University of North Florida
2013

Master of Science
Clinical Psychology
Florida Institute of Technology
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We the undersigned committee hereby approve the attached doctoral level project

An Examination of the 16PF Global Factors as Predictors of the Scale of Accurate
Personality Prediction (SAPP)

By

Maria Christina Mandina

Philip D. Farber, Ph.D.
Associate Professor
College of Psychology and Liberal Arts
Committee Chair

Richard T. Elmore, Jr., Ph.D.
Associate Professor
College of Psychology and Liberal Arts
Committee Member

John Frongillo, Ph.D.
Assistant Professor
School of Arts and Communication
Committee Member

Mary Beth Kenkel, Ph.D.
Professor, Dean
College of Psychology and Liberal Arts

Abstract

TITLE: An Examination of the 16PF Global Factors as Predictors of the Scale of Accurate Personality Prediction (SAPP)

AUTHOR: Maria Christina Mandina, M.S.

MAJOR ADVISOR: Philip D. Farber, Ph.D.

The Scale of Accurate Personality Prediction (SAPP), first developed by Miller (2000), was designed to measure one's self-knowledge regarding their personality traits. The SAPP was derived from the Sixteen Personality Factor Questionnaire (16PF) by means of comparing the differences between a respondent's predicted and obtained scores on the 16PF. Numerous studies to date have examined both the reliability and validity of the SAPP. A recent study looked at the predictability of the SAPP score utilizing the 16 obtained primary scales of the 16PF (Mazur, 2015) so as to be able to derive a SAPP score directly from the obtained 16PF results. The purpose of this current study was to further examine the potential derivation of the SAPP score by examining which 16PF global factors would best predict an individual's SAPP scores. Much like the Mazur (2015) study, the current study also utilized a series of multiple regression analyses to determine which global factors on the 16PF best predict the SAPP score, using the current database of over 600 respondents.

With the present results, along with those obtained by Mazur (2015), as guidelines, the next regression study will then combine all of the 21 16PF scales to determine the most accurate combination to predict one's SAPP score. This will then

eliminate the need to have one predict one's scores to yield the SAPP score, thus making it possible to add it to the most recently derived 16 PF specialty scales.

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An Examination of the 16PF Global Factors as Predictors of the Scale of Accurate Personality Prediction (SAPP)

Literature Review

The concept of the self and self-knowledge has been of interest among philosophers, writers, laypeople, and psychologists for centuries. To know oneself was a fundamental virtue for the ancient Greeks, as it was considered essential to flourish and obtain wisdom. The idea of self-knowledge as an essential component for a meaningful life has been preserved in the present-day Western world. Self-knowledge is thought to be the foundation for important decisions concerning one's future, based on the knowledge of one's qualities, values, interests, and personality. However, the meaning of self-knowledge is not well understood due to the complexity of the two constructs comprising it; namely, the "self", and "knowledge" (Hart & Matsuba, 2012). A brief look at these two constructs would be instructive at this point.

The Self

Although many definitions and conceptualizations have been offered, there is no consensual framework for the various different facets of the self (Pervin & John, 1999). For William James (1890/1998, p. 291), the self evolves from consciousness: "a man's self is the sum total of all that he can call his" (as cited in Hart & Matsuba, 2012, p.291). Hart and Matsuba (2012), refer to the self as "a loose connection of experiences, memories, propositions, and theories" (p.8). Leary and Tangney (2003) conceptualized the self as a psychological apparatus that permits for self-reflection, affects conscious experiences, determines all perceptions, beliefs, and feelings about oneself, and permits individuals to control their own behavior and abilities to think about themselves.

Furthermore, Leary and Tangney (2003) identified five distinct ways in which behavioral and social scientists have utilized the word self: 1) the self as the total person, 2) the self as personality, 3) the self as the executive agent, 4) the self as beliefs about oneself, and 5) the self as the experiencing subject. The self as the total person simply refers to just the person, him or herself. The self as personality refers to all or part of an individual's personality. Tesser (2002, p.185) has suggested that the self is "a collection of abilities, temperament, goals, values, and preferences that distinguish one individual from another..." (as cited in Leary & Tagney, 2003, p. 6-7). The self as the executive agent refers to the decision making process that regulates one's behavior (Leary & Tangney, 2003). The last two components of the self, the self as beliefs about oneself, and the self as the experiencing subject, are generally considered the most common components of any definition of self. Pervin and John (1999) have suggested that all definitions have at least two underlying phenomena of the self: 1) stable mental representations and 2) an ongoing sense of self-awareness. The stable mental representations correspond to the self-as-object perception, or the self as "Me", and refers to perceptions, thoughts, and feelings about oneself. This is congruent with #4 (i.e., the self as "Me") above. The ongoing sense of awareness corresponds to the self-as-perceiver, or the self as "I" (see #5 above), and is responsible for moment-to-moment self-awareness, or the inner psychological entity that is the center of a person's experience (Pervin & John, 1999; Leary & Tangney, 2003).

Knowledge

An extensive look into the meaning of “knowledge” would be well beyond the focus of the present work. Suffice it to say that no true consensus has emerged across the multitude of philosophical, epistemological, and lexical tomes as to what constitutes knowledge. For the present purposes, perhaps the works of Scheffler (1983) and Steup (2008) may best summarize the conditions necessary to assert a certain level of knowledge. These authors have suggested three conditions as prerequisites to affirming that an individual holds knowledge: 1) the knowledge must be true, 2) the knowledge must be justified, and 3) the knowledge requires beliefs in a proposition (Scheffler, 1983; Steup, 2008, as cited in Hart and Matsuba, 2012).

Self-Knowledge

Acquiring knowledge about the self is difficult due to the various complex facets of the self. There are various theories and components of the self that influence the capacity of self-knowledge. As William James (James, 1890/1998, p.291) noted, in order for there to be a “self,” there must exist the capacity for reflection, the individual the must determine the aspects that compose the self, and the “self” must include the elements of self-identification. There are two significant key components in the development of self-knowledge: representations and personal memories. Personal memories are considered key constituents of the sense of self. Representations and generalizations of the self, such as self-appearance, capabilities, and psychological characteristics, also contribute to the development of self-knowledge.

The origins of self-knowledge can be conceptualized by three main developmental theories: neo-psychoanalytical, cognitive-developmental, and social attunement (Hart & Matsuba, 2012). The neo-psychoanalytical theories, proposed by Ausubel (1949), suggest that emotions and individual needs govern psychological functioning and provide the basis for the development of self-knowledge. The cognitive developmental theory, based on Baldwin (1906), suggested that the self develops predominately due to social imitation. Baldwin postulated that individuals require imitation for survival skills, and that through imitation, the individual's self develops and is influenced by unities between representations of self, and which then reveal the importance and desire in the experience of the self. Lastly, social attunement theory, which has its roots in the work of George H. Mead (1934), suggests knowledge is obtained by making inferences of what others believe of the self, which is related to self-reflection, and then leads to the idea of self-consciousness. More contemporary theories propose that self-knowledge is dependent upon a variety of perceptual, cognitive, biological, and social processes that interact as individuals develop through their environment. Consequently, traditional and contemporary theories should all be taken into account when conceptualizing the development of self-knowledge. Decisions regarding careers and relationships can be influenced by the level of self-knowledge one possess, including awareness of talents, qualities, traits, and personality (Hart & Matsuba, 2012). It is the area of personality that has the most relevance for this present study.

Personality

The study and understanding of personality is not only critical within the field of psychology, but also various across other disciplines, which look to evaluate individuals. The study of personality focuses on differences in the way individuals think about themselves and the world around them, process internal and external information, and behave in response to that information. These differences are what define personality itself. The complexity of the various aspects of personality makes it difficult to define it precisely. Cattell (1950) defined personality as “that which permits a prediction of what a person will do in a given situation” (p.2) as cited in Ellis, Abrams, & Abrams, 2009, p.231). Feshbach & Weiner (1982) describe personality as referring to: “relatively enduring behavior patterns and traits that distinguish people, groups, and cultures; the overall organization and structure of these enduring behavior patterns and traits; and the interactions among these patterns as well as the interactions with the fluctuations in an individual’s internal state and the changing external stimulus situation” (p.12).

Throughout the various disciplines that study personality, personality theories have been developed to explain how and why the differences among individuals exist, and to conceptualize and understand individual differences of human behavior, the development of personality over time, and the possible origins and influencing factors in the wide array of psychological disorders. In order to best understand the similarities and differences that exist across the many psychological theories of personality, these theories have often been divided into the following broad domains: psychodynamic, humanistic, behavioral, social learning, and trait theories.

Psychodynamic Theory

Psychodynamic theory, or psychoanalytical theory, as it is often called, is based on the main premise that self-regulating and independent unconscious processes make up the essence of personality, and operate through mental structures that are in continual conflict (Ellis, Abrams, & Abrams, 2009). Sigmund Freud is considered the father of psychoanalysis, and his psychoanalytic model provided the principal framework for the plethora of subsequent analytic theories that followed. The two central concepts of Freud's original theory are 1) homeostasis, the tendency toward the preservation of a relatively stable environment, and 2) hedonism, which asserts that pleasure and happiness are the predominant goals in life. Freud believed that personality consists of three systems: the id, the ego, and the super ego. The id is reflected in all the uncontrolled drives or impulses of the individual, which are most often associated with basic biological processes. The ego attempts to organize and mediate between the id and the reality of risks posed by the id's impulses. The super ego is the internalized social component, ingrained in what the person imagines to be the expectations of authority. Quite often the id's desires and impulses are in direct conflict with the demands offered by the superego, and thus it is the function of the ego to remedy these conflicts so as to allow for the healthiest and functional development of the individual. Freud considered human personality to be predominately characterized by these three components (Feschbach & Weiner, 1982).

Humanistic Theory

The humanistic theory of personality states that individuals are basically good and strive toward maximum personal development or self-actualization. Carl Rogers is considered one of the significant figures within the humanistic movement within psychology. He initially viewed the self as the personal identity portion of the phenomenal field, representing all of the individual's experiences. Later on in his career, Rogers concluded that the self is comprised of conscious sensations, perceptions, and the awareness that guides the self-descriptions of "I" or "me." Rogers believed individual development is determined by alterations in the organization of the phenomenal field brought about by the perceptual field. He believed that through interactions with the environment, one can develop a self-concept, or the organized set of characteristics that the individual recognizes as belonging to him or her. By the interactions of the environment, an individual develops the awareness of whom he or she is, or self-knowledge. Each individual creates a unique reality based on the interactions of the environment with his or her phenomenal field, or the person's reality. (Ellis, Abrams, & Abrams, 2009).

Behavioral Theory

The behavioral theory of personality is based on the idea that personality is the observable result of reinforcement (Ellis, Abrams, & Abrams, 2009). John Watson is considered the founder of behaviorism. The purpose of his theory was to predict and control behavior. He proposed that all knowledge depends on external stimuli and all behavior is predetermined by external circumstances regardless of other factors, such as

biology or genetics (Feschbach & Weiner, 1982). Watson viewed human personality as lacking any preexisting traits or hypothetical structures. He explained that personality is formed in the individual as distinctive stimuli are attached to emotions through classical conditioning (Ellis, Abrams, & Abrams, 2009).

B.F. Skinner, one of the most prominent radical behaviorists, agreed with the work of Watson, and became the principal leader of the behaviorist theory. Skinner viewed personality as simply the composite learned responses within a specific individual. To him, the concept of personality, along with personality theories, required inferring the existence of traits, temperaments, and cognitive styles, and these inferences, consequently, make an individual more inexplicable than understandable. He believed that all theories of human behavior are the result of failure to determine behavioral predecessors and relevant reinforcement contingencies, leading to unnecessary complex explanations of the individual. He believed that personality was not constant, but unstable across situations depending upon presenting stimuli and varying types and degrees of reinforcers (Ellis, Abrams, & Abrams, 2009).

Social Learning Theory

Social Learning theory is based on the foundation that personality develops out of directly reinforced, observed, or socially encouraged behaviors (Ellis, Abrams, & Abrams, 2009). Albert Bandura is the most notable figure of the social learning theory. He believed that individuals are the products of learning processes and have the capability of internalizing various behaviors. For the development of personality, Bandura highlighted the importance of cognition, rather than biological factors. He

believed that an individual's subjective perceptions of events are what impact the individual, not the external event alone. His conceptualization of personality greatly emphasized the contingent consequences of a behavior. Internal mediating processes, such as attention, covert rehearsal of instructions, self-criticism, and self-reinforcement also play a significant role in social learning. With regard to social development, Bandura believed that certain learning mechanisms, such as observational learning, play a very significant role in human learning. Personality characteristics are therefore acquired by imitating or copying the behavior of the models one observes (Feshbach & Weiner, 1982).

Trait Theories

Trait theory is based on the premise that differences among people can be reduced to a limited number of distinct behavioral styles or traits. Personality, then, is composed of several discrete, stable, and enduring characteristics. Definitions of traits tend to have the same elements in common: traits are stable within a given individual, traits vary among individuals, traits can be measured, and traits are responsible for closely related behaviors. Compared to most of the other theories outlined, trait theory is perhaps the most directly based on and corroborated by research data and can be operationally defined and investigated through the use of scientific methodologies. The analysis of traits can differentiate personalities. Raymond Cattell believed that traits could be statistically measured by observing one's behavior as well as the behaviors of others. In turn, these measurements then permit the prediction of behavior (Ellis, Abrams, & Abrams, 2009). Trait theory also offers methods for the measurement of the components

of personality, and in particular for the possible measurement of one of these components, which happens to be the focus of this research project; namely, personality self-knowledge.

Personality Self-Knowledge

Personality self-knowledge (PSK) can be simply conceptualized as the degree of agreement between individuals' self-views of their personality, and their "real" personality. More specifically, Vazire & Carlson (2010, p. 133) define personality as "accurate explicit self-perceptions of how one regularly thinks, feels, and behaves, and awareness of how those patterns are interpreted by others" (Vazire & Carlson, 2010, as cited in Back & Vazire, 2012). Therefore, Vazire and Carlson conclude that PSK can be measured as correlations of explicit self-reports of personality, behaviors, and reputations.

Various domains of self-knowledge can be extracted from the meaning of personality self-knowledge. First, individuals process information about themselves and their environment in both explicit and implicit manners, a notion referred to as the explicit-implicit consistency. It reveals the degree in which an individual's conscious self-descriptions are in line with one's implicit self-related representations. Second, the degree to which one's explicit personality self-views converge with actual behavior, or behavioral prediction, is often considered a requirement for the validation of any personality measure. A third domain consists of how well an individual's explicit personality self-views converge with others' perceptions of one's personality, or self-other agreement. Lastly, PSK can be studied by inquiring about the degree of how well

the individual knows how others view his or her personality, or meta-accuracy. Overall, individuals can be considered to have adequate self-knowledge if their self-concept is reflected by their implicit self, typical behavior, and their reputation versus one who lacks these characteristics (Back & Vazire, 2012).

Measurements of Self Knowledge

Self-knowledge has been considered a likely aid in psychological and mental health functioning and important effects of self-knowledge are evident in various human endeavors. Unfortunately, there has been an insufficient amount of research in efforts to explore the accuracy of self-knowledge (Feshbach & Weiner, 1982). Despite ongoing interest in the accuracy of self-knowledge, there has been limited research directly addressing this topic. Several factors may be responsible for this, such as the difficulty of arriving at a consensual and simple definition of self-knowledge, or the difficulty to accurately conceptualize the richness and individuality of an individual's real personality. As a result, the empirical measurement of real personality self-knowledge has proven to be a difficult task. Back and Vasire (2012) concluded that assessing personality self-knowledge likely requires a combination of measurements from numerous areas, such as self-reports, knowledgeable other reports, and observed behavior (Back & Vazire, 2012).

Of the limited amount of research in this area, there exist just a few assessments that attempt to measure similar constructs. The Integrative Self-Knowledge Scale (ISKS) developed by Ghorbani, Watson, and Hargis in 2008 is intended to measure “a temporally integrated understanding of processes within the self” (p. 395). This integrative scale was created by using an “adaptive capacity to integrate past and present

self-experience to obtain desired outcomes in the future” (p. 407). The following questionnaires were given to participants: the Experiential Knowledge Scale, the Reflective Knowledge Scale, Brown and Ryan’s (2003) Mindfulness Scale, and 30 potential statements of integrative self- knowledge. Thirty statements were derived from the researchers’ definition of integrative self-knowledge, “adaptive and empowering attempt of the self to understand its experience across time to achieve desired outcomes” (p. 397). Next, 12 items were selected for the inclusion on the ISKS scale based on a three-factor model: reflective self-knowledge, experiential self-knowledge, and mindfulness. Analyses on the data collected found a three-factor model of integrative self-knowledge that seems to load equally upon the individual factors. Convergent validity revealed the presence of higher integrative self-knowledge was associated with greater experiential self- knowledge, reflective self-knowledge, and mindfulness (Ghorbani, Watson, & Hargis, 2008). Another scale intended to measure self-knowledge is the Scale of Accurate Personality Prediction (SAPP). It is this scale that is the focus of the present research project.

Scale of Accurate Personality Prediction (SAPP)

Miller (2000) developed the Scale of Accurate Personality Prediction (SAPP) in an effort to measure an individual’s self-knowledge. The SAPP scale intends to measure the extent of an individual’s self-knowledge by comparing obtained scores on an objective personality measure of personality with the corresponding predicted scores on that same measure. The SAPP scale was generated from the Sixteen Personality Factor (16PF) Questionnaire, a comprehensive and widely used objective personality measure.

The 16PF was created by Raymond Cattell and released in 1949. Since the first release in 1949, there have been four major revisions. The main goals of the latest revision were to update, refine item content, and collect a larger, newer normative sample. The current edition is comprised of the original 16 personality factors that Cattell believed represented the most predominant universal aspects of personality. The 16 factors, measured in bipolar standardized ten (sten) scores, are as follows: Warmth (A), Reasoning (B), Emotional Stability (C), Dominance (E), Liveliness (F), Rule-Consciousness (G), Social Boldness (H), Sensitivity (I), Vigilance (L), Abstractedness (M), Privatness (N), Apprehension (O), Openness to Change (Q1), Reliance (Q2), Perfectionism (Q3), and Tension (Q4). When these 16 primary factors were further analyzed, five more secondary emerged and have been referred to as the Global Factors. These Global Factors are as follows: Extraversion (EX), Anxiety (AX), Tough-Mindedness (TM), Independence (IN), and Self-Control (SC). Since its release in 1949, the fifth edition contains the original 16 factors that Cattell identified (16PF Manual). New to the Fifth Edition, the Impression Management (IM) Index replaced the “Faking Good” and “Faking Bad” scales from the Fourth Edition. New indices include the Acquiescence (ACQ) index and the Infrequency (INF) index (Cattell & Mead, 2008). See Appendix A for a copy of the 16PF, Fifth Edition’s Individual Record Form.

Cattell’s hierarchical organization is constructed on the notion that all traits are intercorrelated in reality and could thus be factor-analyzed to create the secondary level global traits. These results therefore governed the meanings of the primary and global factors. The global traits define a higher, more theoretical view of personality, providing

the broad framework for understanding the meaning and purpose of the primary traits. The primary traits provide more thorough information about the richness and uniqueness of the individual. Combined, they deliver a comprehensive, in-depth understanding of the individual's entire personality (Cattell & Mead, 2008).

The 21 scales are presented as sten, or standard ten, scores with both high and low scores possessing significance. Sten scores are based on a 10-point scale with a mean of 5.5 and a standard deviation of 2. Scores further from the mean are interpreted as more extreme. Stens from 4 to 7 are considered within the average range, stens of 8 to 10 are within the high range, and stens of 1 to 3 within the low range (16PF Manual). The profile sheet (Appendix A) displays all 21 scales on the bipolar 1 to 10 continuum. The profile sheet includes adjectives for each of the 21 factors describing the extreme scores.

Miller's (2000) development of the SAPP required participants to complete the 16PF- Fifth Edition and then rate themselves on each of the 21 personality factors of the 16PF using a blank profile sheet. The absolute differences between the participants' obtained scores (OS) and self-predicted scores (PS) on all 21 factors were then summed to create the SAPP score. SAPP scores can range from 0 to 189 and the maximum difference between a participant's OS and PS is nine points for any of the 21 factors. In this initial study (Miller, 2000), the SAPP scores ranged from 18 to 79 with a mean of 42.07 and a standard deviation of 11.74 (Miller, 2000). Low SAPP scores are believed to indicate high levels of self-prediction, and thus high self-knowledge. Similarly, high scores should be indicative of lower levels of self-knowledge.

Reliability of the SAPP

With regard to reliability, validity and generalization of the SAPP scale, subsequent studies have attempted to establish the SAPP as a viable measure of self-knowledge (Hood, 2001; Anderson, 2002; Winter, 2002; Glywasky, 2003; Layton, 2005; Hickey, 2005; Afanador, 2006; Grossenbacher; Wolf, 2006; Blankemeier, 2007; Rodriguez, 2007; Silva, 2011; Hirsch 2012; Elghossain 2012; Sverdlova 2013; and McElligott, 2014).

With respect to test-retest reliability, Silva (2011) attempted to research the test-retest reliability of the SAPP with an interval of two weeks between the testing. The results revealed a significant, yet relatively low, correlation between the two derived SAPP scores ($r^2 = .397, p < .05$). Hirsch (2012) replicated Silva's research and found a significant moderate correlation between the two SAPP scores ($r^2 = .566, p < .01$). Sverdlova (2013) investigated the SAPP's test-retest reliability using a four-week interval between testing conditions. Results revealed a significant correlation between the two SAPP scores ($r^2 = .466, p < .05$). Another test-retest reliability study (Elghossain, 2012) used a six-week interval between testing and found a significant correlation between the two SAPP scores ($r^2 = .722, p < .01$). While the latter correlations are still somewhat lower than desired, when the two week test – retest data of the 16 primary scales are considered, which have a range of reliabilities from .69 to .87 (Conn & Rieke, 1994), the SAPP reliability numbers appear quite acceptable. The major limitation throughout all of these studies is their relative small sample sizes.

Validity of the SAPP

Validity refers to a test's ability to measure what it is supposed to measure. Construct validity refers to how well a test measures the construct that it was designed to measure. Convergent validity reflects the degree to which two measures that are considered to be measuring a similar construct will correlate positively with each other. Divergent validity reflects the degree of nonsignificant correlation for two measures not considered to be measuring a similar construct. With regard to the validity of the SAPP, the question is whether or not the SAPP is actually measuring a person's self-knowledge. To investigate the validity, the SAPP has been compared with other established measures that may have been thought to measure something akin to self-knowledge. Hood (2001) attempted to establish convergent validity of the SAPP with the Private Self-Consciousness factor in the Self-Consciousness Scale, which measures an individual's level of focus on feelings and inner thoughts (Hood, 2001). Hood hypothesized this self-awareness may be component of self-knowledge; however, no significant results were found. Nonetheless, divergent validity between the SAPP and the Tennessee Self-Concept Scale was found, suggesting the SAPP score does not correlate with self-esteem. In 2003 the study was replicated with a larger sample size. Glywasky (2003) did not find significant results despite the increase in sample size. Additionally, no significant correlations were found between the SAPP and the private self-conscious factor of the Private Self-Consciousness Scale or between the SAPP and the Tennessee Self-Concept Scale. In 2002, Anderson attempted to establish convergent validity of the SAPP with the Self-Monitoring Scale, which measures an individual's willingness or ability to adjust

their behaviors in social situations, but again results did not yield significance. In all of the above construct validation efforts, it was suggested, as an argument for the emergence of the non-significant correlations, that the validation measures used (i.e., the Private Self-Consciousness Scale, and the Self-Monitoring Scale) are both measures of the self as “I”, while the SAPP is more based on the self as “Me”.

Another attempt to establish construct validity utilized a priori groups. Winter (2002) hypothesized that graduate students in clinical psychology should potentially have higher levels of self-knowledge than a group of engineering graduate students. No significant difference, however, was found. In 2006, Grossenbacher attempted to replicate Winter’s study with an increased sample size. This study yielded significant differences in the hypothesized direction, establishing some initial construct validity to the measure.

Layton (2005) and Hickey (2005) tried to establish the validity of the SAPP by using the degree of agreement between an individual self-predicted 16PF scores and those made by family members and friends of the individual, respectively. It was hypothesized that the higher agreement of an individual’s predicted scores with the family/friends predicted scores of the individual, the lower (and thus better self-knowledge) the SAPP score would be. A concordance measure was created to measure the amount of agreement between one’s self-prediction and those made by family members or friends. The SAPP score was then correlated with this concordance measure to test the hypothesis. Layton (2005), who utilized close friends of the targeted subjects, did not obtain results in the hypothesized direction. Hickey (2005) used the family

members of the targeted subjects, and her correlation between her subjects' concordance measure and SAPP scores just failed to reach levels of statistical significance. Wolf (2006) attempted to replicate Layton's study and with a larger sample and did find a significant correlation between the concordance measure and her subjects' SAPP score, lending some construct validation of the SAPP. In a similar manner, Blankemeier (2007) replicated Hickey's work with a larger sample, and in doing so also obtained significant results, again lending some support to the construct validation of the SAPP.

Generalizability and Predictability of the SAPP

A study by Rodriguez (2001) examining the generalizability of the SAPP and the Hispanic/Latino population found significant results and concluded that the SAPP can be generalized to the Hispanic/Latino population. Similarly, Zeng (2015) examined the generalizability to the SAPP and the Asian population and found that the SAPP can be generalized to the Asian population.

McElligott (2015) utilized a combined database of 609 respondents to develop sten score equivalents for the respective calculated SAPP scores. Utilizing the two methods for calculating the sten scores, she found strong correlations between the two obtained sten scores. McElligott also linearly inverted all the database's SAPP scores, so that a high SAPP score would now reflect a high level of self-knowledge, and a low SAPP score, a low level of self-knowledge.

Mazur (2013) sought to further investigate Miller's (2000) findings by utilizing a series of regression analyses to determine which primary factors on the 16PF would best predicted the SAPP score. This line of research is most important, as it would hopefully

allow for the derivation of the SAPP score simply by utilizing a combination of the primary and secondary 16PF factor scores. This would then supplant the need to have individuals predict their own scores to calculate their SAPP score. Rather, the SAPP score would be derived from the indicated combination of the most SAPP-predictable primary and secondary scales. Mazur's using the primary scales showed the overall predictive model was significant and indicated that the factors of Emotional Stability (Factor C+), Sensitivity (Factor I-), Suspiciousness (Factor L-), and Tension (Factor Q4-) were significantly predictors of the SAPP scores. The best primary scale predictor of the SAPP score was low scores on the Suspiciousness primary scale. What needs to next occur is to examine the overall SAPP predictability of the five secondary factors

Statement of Purpose for the Present Study

Theories of self and self-knowledge have been of interest for centuries. However, there has been a lack of research aimed at discovering the correlation between personality domains and the accuracy of self-report of one's own traits. The purpose of this current study was to follow up on Mazur's 2013 findings, which identified the specific combination of 16PF factors that would best predict individuals' SAPP scores. Specifically, this study examined the 16PF global factors as predictors of the Scale of Accurate Personality Prediction.

Method

Subjects

Since Miller's 2000 study, 645 respondents' data have been added in the SAPP database. The current study utilized the existing data from the database. Subjects include

college students, individuals from the community, and other professionals.

Measures

1. The Sixteen Personality Factor Questionnaire- Fifth Edition (16PF- 5th edition)

The 16PF is a comprehensive self-report objective personality measure developed by Dr. Raymond Cattell in 1946 in efforts to investigate universal aspects of personality. It is comprised of 185 multiple choice questions, each containing three answer choices, including true, false, or unsure. Completion of the 16PF takes an average of 35 to 50 minutes. Individuals are encouraged to answer all questions honestly and attempt to answer with a true or false choice, if possible. Scoring of the 16PF results in 24 scores, which consist of sixteen personality factor scores, five global factor scores, and three validity scores (Impression Management (IM) scale, Acquiescence (ACQ) scale, and Infrequency (INF) scale). The fifth edition was published in 1994 and the normative sample was comprised of 2,500 individuals from the United States who were selected in accordance with 1990 U.S. Census data with regards to age, gender, education, and race. It was updated in 2002 with new norms based on the 2000 U.S. Census with a sample size of 10,261 individuals. Psychometric properties of the 16PF have been shown to have both strong criterion and construct validity.

2. The Sixteen Personality Factor Questionnaire- Fifth Edition Profile Sheet

The 16PF-5th edition profile sheet provides sixteen primary factors and five global factors (See Appendix ?). Each factor scale ranges on a continuum from one to

ten.

3. Calculation of the SAPP

Miller (2000) sought to create an overall measure of self-prediction of personality traits using the 16PF Fifth Edition and along with Philip Farber, PhD, developed the SAPP. The objective was to assess the accuracy of individuals in predicting/describing their personality and to identify traits that are related to an individual's ability to accurately predict his or her own personality characteristics. A predicted score (PS) and an obtained score (OS) were calculated for each of the sixteen primary factors and the five global factors. Each factor is specified by its given 16PF letter (e.g. PSA and OSA for Factor A). These scores contributed to the SAPP, which consists of totaling the amount of absolute difference scores from the sixteen primary factors and five global factors. The absolute difference was obtained by subtracting the predicted score from the obtained score for each factor. Lower scores reflect a greater ability in self-prediction, while higher scores reflect a reduced ability in self-prediction. The lowest possible score on the SAPP is a 0 (optimal accuracy), while the highest possible score is a 189 (poor predictive ability). Most recently, these SAPP scores have been inverted to have high scores reflect a higher ability to accurate self-prediction, and lower scores reflecting less accurate self-prediction.

Procedure

Participants were initially administered the 16PF. After administration, they were provided with a blank 16PF scoring sheet and were asked to rate themselves on each of

the 16 personality factors and each of the 5 global factors. These scores were then compared to the obtained 16PF scores.

Analysis

As Miller's 2000 study originally developed the formula to calculate one's SAPP score, it provided the basis for analysis of this study. The current study examined demographics of the current database, including gender, age, ethnicity, marital status, employment, and geographic region. Using the already established SAPP database of 645 participants, a series of regression analyses were conducted to determine which global factors of the 16PF best predict an individual's SAPP score. To ensure adequate reliability, the database was split in two halves and equivalent regression analyses were then performed on each sample. Regression analyses were then calculated for the total sample.

Hypotheses

First, it is hypothesized that results of this study will find the global factor, Tough Mindedness, to be a significant predictor of the SAPP score, similar to the findings of Miller's (2000) study. Second, it is hypothesized that the global factor, High Anxiety/Low Anxiety, will also be a significant predictor of the SAPP score, based on Mazur's (2015) study which found significance in the primary factors, Suspiciousness, Tension, and Emotional Stability, which all load on the global factor High Anxiety/Low Anxiety, in predicting SAPP scores.

Results

The current study utilized a database of 645 participants. Participants completed the 16PF and then predicted their scores on the 16PF. A SAPP score was calculated using participants' obtained and predicted scores.

Demographic Results

Table 1 represents the participant demographics of the current study. The age of participants ranged from 16 to 81 years old with a mean age of 28.59 and standard deviation of 12.37. In regard to gender, 58.0% were female and 42.0% were male. In regard to marital status, 53.8% were single, 15.2% were married, 3.6% were divorced, 0.8% were separated, and 0.5% were widowed. In regard to ethnicity, the sample was comprised of 71.0% Caucasian, 11.9% Hispanic, 9.35% Asian, 2.3% African American, 0.2% Indian American, and 5.3% Other. In regard to occupation, the sample was comprised of 53.5% Student, 18.9% white-collared jobs, 3.7% unemployed/homemakers, 1.4% blue-collar jobs, and 7.0% other. Geographically, 58.1% of the participants were from the Southeast region, 9.6% were from the Northeast region, 2.9% were from the Midwest, 2.8% were from the Southwest, and 0.2% were from Canada. The mean education for the sample was 16.075 years (range= 11-23) with a standard deviation of 2.18.

Split Half Multiple Regression Analysis

The database was split into two samples by odd and even numbers. Each sample then underwent regression analyses and the results were compared as a form of reliability. For each half sample, a general multiple regression, forward regression, and

backward regression were all performed to assess the predictability of the global factors on a participant's SAPP score.

A Pearson Chi-Square was conducted on the demographic variables to evaluate whether there were significant differences between the demographics of each half sample (Half Sample 1 and Half Sample 2). As shown in Table 4, results revealed no significant differences between the two half samples with: Ethnicity $\chi^2(5,645)=1.28, p=.94$, Occupation $\chi^2(5,564)=2.73, p=.74$, Marital Status $\chi^2(4,476)=0.88, p=.93$, or Geography $\chi^2(4,475)=1.05, p=.90$.

A general multiple regression analysis was conducted on each half sample to assess the predictability of the five global factors on a participant's SAPP score. The results yielded the following: For Half Sample Even, as seen in Table 5, a general multiple regression was conducted and a significant regression equation was found, $F(5,314)= 3.65, p <.01$), with an R^2 of .055. That is, only 5.5% of the variance of the SAPP score can be accounted for by the scores of the five global factors. It was found that the Independence global score ($\beta= 1.60, p<.01$), and the Tough Mindedness global score ($\beta= 1.19, p<.05$), and the Extraversion global score ($\beta= -.924, p<.05$) significantly predicted individuals' SAPP scores. For the Half Sample Odd, a general multiple regression was conducted and a significant regression equation was also found, $F(5,317)= 3.86, p <.01$, with an R^2 of .057, indicating that only 5.7% of the variance of the SAPP score can be accounted for by the scores of the five global factors. It was found that the Independence global score ($\beta= 1.58, p<.01$) and the Tough Mindedness global score ($\beta= 1.62, p<.01$) significantly predicted individuals' SAPP scores (see Table 6).

A forward multiple regression was conducted next; however, the analyses was unable to perform with the Half Sample Even. As seen in Table 7, with the Half Sample Odd, in Model 1, the Tough Mindedness global score was entered into the equation and was significantly related to the SAPP score ($F(1, 321) = 8.31, p < .01$), with an R^2 of .022, indicating that only 2.2% of the variance of the SAPP score can be accounted for by the Tough Mindedness global score. In Model 2, the Independence global score was entered and revealed significant results, $F(2, 320) = 8.78, p < .01$), with an R^2 of .052, indicating that only 5.2% of the variance of the SAPP score can be accounted for by the Independence global score.

A backward multiple regression was conducted on both halves of the data. The results of Half Sample Even, indicated that all the global factors accounted for 5.5% of the variance. In Model 1, all variables were entered and revealed significant results, $F(5,314) = 3.65, p < .01$). It was found that the Independence global score ($\beta = 1.60, p < .01$), the Tough Mindedness global score ($\beta = 1.19, p < .05$), and the Extraversion global score ($\beta = -.967, p < .05$) significantly predicted individuals' SAPP scores. In Model 2, Anxiety global score was removed, revealing significant results, $F(4,315) = 4.55, p < .01$), with an R^2 of .055. Within this model, it was found that the Independence global score ($\beta = 1.60, p < .01$), the Tough Mindedness global score ($\beta = 1.18, p < .05$), and the Extraversion global score ($\beta = -.967, p < .05$) significantly predicted individuals' SAPP scores (see Table 8). A backwards multiple regression on Half Sample Odd generated several significant models. In Model 1, all variables were entered and revealed significant results, $F(5,317) = 3.86, p < .01$), with an R^2 of only .057. It was found that the Independence global score ($\beta =$

1.58, $p < .01$) and the Tough Mindedness global score ($\beta = 1.62, p < .01$) significantly predicted individuals' SAPP scores. In Model 2, Self Control global score was removed, demonstrating significant results, $F(4,318) = 4.76, p < .01$, with an R^2 of only .057. Similarly, within this model, it was found that the Independence global score ($\beta = 1.59, p < .01$) and the Tough Mindedness global score ($\beta = 1.56, p < .01$) significantly predicted individuals' SAPP scores. In Model 3, the Anxiety global score was removed, demonstrating significant results, $F(3,319) = 6.2, p < .01$, with an R^2 of only .055. Within this model, it was found that the Independence global score ($\beta = 1.58, p < .01$) and the Tough Mindedness global score ($\beta = 1.49, p < .01$) significantly predicted individuals' SAPP scores. In Model 4, the Extraversion global score was removed and revealed significant results, $F(2,320) = 8.78, p < .01$, with an R^2 of only 0.52. Again, within this model, it was found that the Independence global score ($\beta = 1.45, p < .01$) and the Tough Mindedness global score ($\beta = 1.55, p < .01$) significantly predicted individuals' SAPP scores (see Table 9).

Total Sample Regression Analyses

A series of multiple regression was conducted on the entire sample to evaluate the predictability of the global factors on the SAPP score. A general multiple regression analysis was conducted and the overall model was significant, as seen in Table 10, $F(5,637) = 7.10, p < .01$ and accounting for 5.3% of the variance. It was found that the Independence global score ($\beta = 1.58, p < .01$) and the Tough Mindedness global score ($\beta = 1.43, p < .01$) significantly predicted individuals' SAPP scores. A forward regression generated significant results in across all Models as seen in Table 11. In Model 1, the

Tough Mindedness global score entered and the model was significant, $F(1,641)= 11.01$, $p<.01$, with an R^2 of only .017. In Model 2, the Independence score was added to the Model and generated significant results, $F(2,640)= 13.64$, $p<.01$, with an R^2 of only .041. In Model 3, the Extraversion score was added to the Model, and also revealed significant results, $F(3,639)=10.71$, $p<.01$, with an R^2 of only .048. All global scores entered into these Models were found to be significant predictors of individuals' SAPP scores. The backwards regression analysis revealed significant results in Model 1, as seen in Table 12, where all variables were entered, $F(5, 637)= 7.10$, $p<.01$, with an R^2 of only .053. It was found that the Independence global score ($\beta= 1.58$, $p<.01$) and the Tough Mindedness global score ($\beta= 1.43$, $p<.01$) significantly predicted individuals' SAPP scores. In Model 2, the Anxiety global score was removed and revealed significant results, $F(4,638)= 8.77$, $p<.01$, with an R^2 of only .052. Similarly, it was found that the Independence global score ($\beta= 1.58$, $p<.01$), the Tough Mindedness global score ($\beta= 1.41$, $p<.01$), and the Extraversion global score ($\beta= -.66$, $p<.05$) significantly predicted individuals' SAPP scores.

In summary, the most consistent and significant global factors that best predicted one's SAPP score included the Independence global score, the Tough Mindedness global score, and the Extraversion global score.

Discussion

A series of multiple regression analyses were conducted on the half samples and the entire sample to assess the predictability of the five global factors on individual's SAPP scores. In summary, the most significant predictors of an individuals' SAPP scores

included the Independence global score, the Tough Mindedness global score, and with some variability, the Extraversion global score.

The first hypothesis of the current study, that the global factor, Tough Mindedness, would be a significant predictor of the SAPP score, was supported in this study. That is, knowledge of this factor allowed for better prediction of one's SAPP score. With regard to the second hypothesis of the current study, that the global factor, High Anxiety/Low Anxiety would also be a significant predictor of the SAPP score, was not supported in this study.

Due to some variability in the results, future studies could include samples that more closely approximate population demographics. For example, the current sample consists of significantly more college-aged, Caucasian individuals than what would be found in the general population.

The goal of this current study was to help develop the most accurate formula to predict one's SAPP score, based solely on the obtained 16PF global factors. Combining these results with those from Mazur's (2015) findings, which utilized the primary factors as predictors, may well offer the best SAPP predictive formula. The next indicated study, therefore, would be to replicate the above findings with the 21 total 16PF factors. Such an effort is now underway. The value of having the most accurate 16PF-base specialty scale of one's self knowledge lies within its potential usefulness for research and clinical purposes.

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Table 1
Summary of Demographic Statistics (Total Sample)

Demographic Variable	Frequency	Percent
Gender		
Female	374	58.0%
Male	271	42.0%
Race		
Caucasian	458	71.0%
Hispanic	77	11.9%
Asian	60	9.35%
African American	15	2.3%
Indian American	1	0.2%
Other	34	5.3%
Marital Status		
Single	347	53.8%
Married	98	15.2%
Divorced	23	3.6%
Separated	5	0.8%
Widowed	3	0.5%
Occupation		
Student	345	53.5%
White Collar	122	18.9%
Other	45	7.0%
Retired	19	2.9%
Unemployed/Homemaker	24	3.7%
Blue Collar	9	1.4%
Geography		
Southeast	375	58.1%
Northeast	62	9.6%
Southwest	18	2.8%
Midwest	19	2.9%
Canada	1	0.2%
Education		
Less The 12 Years	1	0.2%
High School Completed	31	4.8%
Some College	214	33.3%
College Degree	146	22.6%

Graduate Of Professional Training 253 39.2%

Table 2

Summary of Demographic Statistics (Half Sample 1 Evens Database)

Demographic Variable	Frequency	Percent
Gender		
Female	178	55.1%
Male	145	44.9%
Race		
Caucasian	227	70.3%
Hispanic	40	12.4%
Asian	31	9.6%
African American	8	2.5%
Other	17	5.3%
Marital Status		
Single	170	71.4%
Married	51	21.4%
Divorced	12	5.0%
Separated	3	1.3%
Widowed	2	0.8%
Occupation		
Student	168	59.6%
White Collar	64	22.7%
Other	25	8.9%
Retired	8	2.8%
Unemployed/Homemaker	11	3.9%
Blue Collar	6	2.1%
Geography		
Southeast	188	79.0%
Northeast	31	13.0%
Southwest	9	3.8%
Midwest	9	3.9%
Canada	1	0.4%
Education		
Less The 12 Years	1	0.3%
High School Completed	14	4.3%
Some College	111	34.3%
College Degree	86	26.6%
Graduate Of Professional Training	110	33.9%

Table 3
Summary of Demographic Statistics (Half Sample 2 Odds Database)

Demographic Variable	Frequency	Percent
Gender		
Female	196	60.9%
Male	126	39.1%
Race		
Caucasian	231	71.7%
Hispanic	37	11.5%
Asian	29	9.0%
African American	7	2.2%
Other	17	5.3%
Indian American	1	0.3%
Marital Status		
Single	177	74.4%
Married	47	19.7%
Divorced	11	4.6%
Separated	2	0.8%
Widowed	1	0.4%
Occupation		
Student	177	62.8%
White Collar	58	20.6%
Other	20	7.1%
Retired	11	3.9%
Unemployed/Homemaker	13	4.6%
Blue Collar	3	1.1%
Geography		
Southeast	187	78.9%
Northeast	31	13.1%
Southwest	9	3.8%
Midwest	10	4.2%
Education		
High School Completed	17	5.3%
Some College	102	31.7%
College Degree	84	26.0%
Graduate Of Professional Training	119	36.8%

Table 4
Pearson Chi-Square Analysis

Demographic Variable	χ^2	p
Race	1.28	.94
Marital Status	0.88	.93
Occupation	2.73	.74
Geography	1.05	.90

Table 5
General Multiple Regression Analysis: Half Sample Even

	Model 1				
Variable	B	SE B	β	t	Sig.
Self Control Global Scale	-.957	.515	-.109	-1.858	.064
Independence Global Score	1.596	.516	.188	3.093	.002
Tough Mindedness Global Score	1.187	.483	.154	2.455	.015
Anxiety Global Score	.116	.439	.016	.264	.792
Extraversion Global Score	-.924	.456	-.132	-2.024	.044

Table 6
General Multiple Regression Analysis: Half Sample Odd

Variable	Model 1				
	B	SE B	β	t	Sig.
Self Control Global Scale	-.286	.530	-.031	-.540	.590
Independence Global Score	1.575	.501	.186	3.144	.002
Tough Mindedness Global Score	1.617	.453	.218	3.570	.000
Anxiety Global Score	.316	.455	.040	.695	.487
Extraversion Global Score	-.336	.451	-.045	-.745	.457

Table 7
Forward Multiple Regression Analysis: Half Sample Odd

	Model 1				
Variable	B	SE B	β	t	Sig.
Tough Mindedness Global Score	1.178	.409	.159	2.883	.004
	Model 2				
Independence Global Score	1.450	.482	.171	3.006	.003
Tough Mindedness Global Score	1.551	.422	.209	3.675	.000

Table 8
Backward Multiple Regression Analysis: Half Sample Even

	Model 1				
Variable	B	SE B	β	t	Sig.
Self Control Global Scale	-.957	.515	-.109	-1.858	.064
Independence Global Score	1.596	.516	.188	3.093	.002
Tough Mindedness Global Score	1.177	.481	.153	2.445	.015
Extraversion Global Score	-.967	.425	-.138	-2.274	.024
	Model 2				
Self Control Global Scale	-.613	.368	-.068	-1.668	.096
Independence Global Score	1.573	.358	.186	4.397	.000
Tough Mindedness Global Score	1.434	.329	.190	4.364	.000
Anxiety Global Score	.215	.314	.028	.685	.494
Extraversion Global Score	-.591	.319	-.082	-1.855	.064

Table 9
Backward Multiple Regression Analysis: Half Sample Odd

	Model 1				
Variable	B	SE B	β	t	Sig.
Self Control Global Scale	-.286	.530	-.031	-.540	.590
Independence Global Score	1.575	.501	.186	3.144	.002
Tough Mindedness Global Score	1.617	.453	.218	3.570	.000
Anxiety Global Score	.316	.455	.040	.695	.487
Extraversion Global Score	-.336	.451	-.045	-.745	.457
	Model 2				
Independence Global Score	1.586	.500	.187	3.172	.002
Tough Mindedness Global Score	1.545	.432	.208	3.573	.000
Anxiety Global Score	.325	.454	.041	.716	.474
Extraversion Global Score	-.337	.450	-.045	-.749	.454
	Model 3				
Independence Global Score	1.581	.500	.187	3.164	.002
Tough Mindedness Global Score	1.493	.426	.201	3.505	.001
Extraversion Global Score	-.432	.430	-.058	-1.006	.315
	Model 4				
Independence Global Score	1.450	.482	.171	3.006	.003
Tough Mindedness Global Score	1.551	.422	.209	3.675	.000

Table 10
General Multiple Regression Analysis: Total Sample

	Model 1				
Variable	B	SE B	β	t	Sig.
Self Control Global Scale	-.613	.368	-.068	-1.668	.096
Independence Global Score	1.573	.358	.186	4.397	.000
Tough Mindedness Global Score	1.434	.329	.190	4.364	.000
Anxiety Global Score	.215	.314	.028	.685	.494
Extraversion Global Score	-.591	.319	-.082	-1.855	.064

Table 11
Forward Multiple Regression Analysis: Total Sample

	Model 1				
Variable	B	SE B	β	t	Sig.
Tough Mindedness Global Score	.980	.296	.130	3.318	.001
	Model 2				
Tough Mindedness Global Score	1.359	.307	.180	4.425	.000
Independence Global Score	1.379	.345	.163	4.003	.000
	Model 3				
Independence Global Score	1.597	.358	.189	-2.165	.000
Tough Mindedness Global Score	1.239	.311	.164	3.984	.000
Extraversion Global Score	-.653	.301	-.090	-2.165	.031

Table 12
Backward Multiple Regression Analysis: Total Sample

	Model 1				
Variable	B	SE B	β	t	Sig.
Self Control Global Scale	-.613	.368	-.068	-1.668	.096
Independence Global Score	1.573	.358	.186	4.397	.000
Tough Mindedness Global Score	1.434	.329	.190	4.364	.000
Anxiety Global Score	.215	.314	.028	.685	.494
Extraversion Global Score	-.591	.319	-.082	-1.855	.064
	Model 2				
Self Control Global Scale	-.612	.367	-.069	-1.669	.092
Independence Global Score	1.578	.358	.186	4.414	.000
Tough Mindedness Global Score	1.408	.326	.187	4.316	.000
Extraversion Global Score	-.663	.301	-.092	-2.202	.028

Appendix

16PF Profile Sheet

PRIMARY FACTORS

Factor	Left Meaning	Standard Ten Scores (STEN)	Right Meaning
A: Warm	Reserved, Impersonal, Distant	1 2 3 4 5 6 7 8 9 10	Warm, Outgoing, Attentive to Others
B: Reasoning	Concrete	1 2 3 4 5 6 7 8 9 10	Abstract
C: Emotional Stability	Reactive, Emotionally Chargeable	1 2 3 4 5 6 7 8 9 10	Emotionally Stable, Adaptive, Mature
E: Dominance	Deferential, Cooperative, Avoids Conflict	1 2 3 4 5 6 7 8 9 10	Dominant, Forceful, Assertive
F: Liveliness	Serious, Restrained, Careful	1 2 3 4 5 6 7 8 9 10	Lively, Animated, Spontaneous
G: Rule-Consciousness	Expedient, Non-Conforming	1 2 3 4 5 6 7 8 9 10	Rule-Conscious, Dutiful
H: Social Boldness	Shy, Threat- Sensitive, Timid	1 2 3 4 5 6 7 8 9 10	Socially Bold, Venturesome, Thick-Skinned
I: Sensitivity	Utilitarian, Objective, Unsentimental	1 2 3 4 5 6 7 8 9 10	Sensitive, Aesthetic, Sentimental
L: Vigilance	Trusting, Unsuspecting, Accepting	1 2 3 4 5 6 7 8 9 10	Vigilant, Suspicious, Skeptical, Wary
M: Abstractedness	Grounded, Practical, Solution- Oriented	1 2 3 4 5 6 7 8 9 10	Abstracted, Imaginative, Idea- Oriented
N: Privatness	Forthright, Genuine, Artless	1 2 3 4 5 6 7 8 9 10	Private, Discreet, Non-Disclosing
O: Apprehension	Self-Assured, Unworried, Complacent	1 2 3 4 5 6 7 8 9 10	Apprehensive, Self- Doubting, Worried

Q1: Openness to Change	Traditional, Attached to Familiar	1 2 3 4 5 6 7 8 9 10	Open to Change, Experimenting
Q2: Self-Reliance	Group- Oriented, Affiliative	1 2 3 4 5 6 7 8 9 10	Self-Reliant, Solitary, Individualistic
Q3: Perfectionism	Tolerated Disorder, Unexacting	1 2 3 4 5 6 7 8 9 10	Perfectionistic, Organized, Self-Disciplined
Q4: Tension	Relaxed, Placid, Patient	1 2 3 4 5 6 7 8 9 10	Tense, High Energy, Driven

GLOBAL FACTORS

Factor	Left Meaning	Standard Ten Scores (STEN)	Right Meaning
EX: Extraversion	Introverted, Socially Inhibited	1 2 3 4 5 6 7 8 9 10	Extraverted, Socially Participating
AX: Anxiety	Low Anxiety, Unperturbed	1 2 3 4 5 6 7 8 9 10	High Anxiety, Perturbable
TM: Tough Minded	Receptive, Open-Minded, Intuitive	1 2 3 4 5 6 7 8 9 10	Tough Minded, Resolute, Unempathetic
IN: Independence	Accommodating, Agreeable, Selfless	1 2 3 4 5 6 7 8 9 10	Independent, Persuasive, Willful
SC: Self-Control	Unrestrained, Follows Urges	1 2 3 4 5 6 7 8 9 10	Self-Controlled, Inhibits Urges