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An Examination of the 16PF Validity Scales as Predictors of the Scale of
Accurate Personality Prediction (SAPP)

by

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An Examination of the 16PF Validity Scales as Predictors of the Scale of Accurate Personality Prediction (SAPP)

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Abstract

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

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The Scale of Accurate Personality Prediction (SAPP) was derived from the 16 Personality Factor Questionnaire (16-PF) as a measure of self-knowledge by comparing the degree of similarity of a participant's predicted and obtained 16 PF results. The purpose of this study was to examine the utilization of the 16PF validity scales as potential predictors of an individual's score on the Scale of Accurate Personality Prediction (SAPP). A series of multiple regression analyses were performed on the current database of 641 respondents. Additionally, to provide additional validity, the database was split into two halves, and the multiple regression analyses were run on each half sample. The multiple regressions were utilized to determine whether or not any of the three validity scales (Impression Management, Acquiescence, and Infrequency) were significant predictors of an individual's SAPP score, and if so, to see if their inclusion in the derivation of the SAPP score would be indicated.

The results indicated that none of the three validity scales were significant predictors of an individual's SAPP score.

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Introduction

The Self in Psychology

Although the definition of the “self” within the realm of psychology has only been “re-discovered” in the past few decades, the concept of “self” is a topic that has been of philosophical interest for thousands of years. Some of the earliest discussions of the self can be found worldwide, from The Upanishads in India, the Tao te Ching in China, to Plato, and Guatama Buddha (Leary & Tangney, 2012). During these times and for centuries later, the self was viewed in religious and theoretical contexts, often centering upon the less desirable, and at times, the “sinful” concepts of vanity, pride, and self-centeredness. The Age of Enlightenment resulted in a return to some of the earlier Greek and Roman conceptualizations of the term through the works of philosophers such as Descartes, Locke, Hume, and Kant (Leary & Tagney, 2012). As examples, Descartes wrote, “Cogito ergo sum” or “I exist because I think”, and similarly Locke referred to the self as being conscious of one’s thoughts, “I think, therefore I am”. Although the self continues to be a huge topic of interest amongst the present social sciences, the research conducted on the self covers a wide variety of different aspects of the self, as well as varying definitions of the term.

William James is credited with the first psychological discussion² of self in his book chapter entitled, “The Consciousness of Self”. James related consciousness to the concept of self, which he defined as “the total sum of all he [man] can call himself” (Hart & Matsuba, 2012). According to Leary and Tagney (chapter 2), there are three implications of this conceptualization. The first of these is that the self cannot exist without the ability to engage in self-reflection; the second is that each individual has the final say of what he or she considers to be a part of his or her “self”; and the third is that the individual also has ownership over his or her emotional interests.

James begins his theory of self by identifying two interacting aspects of the self: the self as the knower (subjective, or the self as “I”) and the self as known (objective, or the self as “me”) (Hart & Matsuba, 2012). The knower (“I”) reflects the phenomenological “entity” within humans that experiences the world, and is the “thinker” of thoughts, the “feeler” of emotions, and the part that allows for awareness of all that occurs. The known self (“me”), on the other hand, contains facts that the individual knows about himself or herself. These include all beliefs, memories, attributes, traits, characteristics etc. that an individual has about him or herself (Hart & Matsuba, 2012). In addition to these

“objective” characteristics of the self, the self as me provides a narrative of the self that gives individuals a framework for which these personal memories and representations can be evaluated for how important they are to individuals’ definition of themselves (Hart & Matsuba, 2012).

In the *Handbook of Self and Identity*, Oyserman, Elmore, and Smith (2012), define the self as both a product of situations and a shaper of behavior in situations. Therefore, although the environment affects the self, one’s sense of self can also impact the way that he or she reacts to environmental situations. An example of this is impression management. When people attempt to manage other people’s perceptions of them, they are engaging in self-presentation (Schlenker, 2009, p. 542).

It is clear that the plethora of definitions of the self often refer to different concepts, depending on the context in which the definition is being used. In response to this, Leary and Tangney (2012) have offered five different ways the term self is used by psychologists. The first of these is using the term “self” interchangeably with the term “person”. This use of the word self is indeed an accurate use of the term, however, it appears to refer to the self only in a physical concept and therefore fails to include any of the psychological aspects of the self (Leary & Tangney,

2012). For example, self-mutilation refers to harming oneself physically⁴ without taking into account any of the psychological reasoning behind engaging in this behavior. The second way the term self is used refers specifically to the personality of an individual. A good example is seen in Maslow's theory of self-actualization and the fact that he refers to the actualization of an individual's "personality". Although this obviously accounts for the psychological aspects of the self, using the term self in this manner can be equally confusing because it implies that self and personality have the same definition (Leary & Tangney, 2012).

The third use of the word self refers to the "inner psychological entity that is the center of a person's experience" (Leary & Tangney, 2012). This conceptualization comes closest to James' category of the "self as I". Individuals often use this definition to describe their unique mental proceedings and the way that they experience the world around them. Although there is no neuropsychological proof of this underlying feeling of one's self, most individuals are in agreement that they have a mental presence that makes them unique in their experiences, thoughts, and feelings (Leary & Tangney, 2012). For example, religious-based doctrines often refer to this as the "soul", and reflect the belief that it is a separate entity from one's physical beings that lives on after death.

The fourth usage of the term self is most similar to James, conceptualization of the “self as me”. Again, this definition of the self is synonymous with the beliefs, information, traits, memories, etc. individuals have about themselves. All people have certain perceptions about themselves that other people may or not agree with, yet they all have a unique bank of knowledge regarding their memories and life experiences that contributes to the way they perceive themselves. Although other people may share similar knowledge about another person’s experiences or may have engaged in the same experience, there is a good chance that both individuals have different perceptions of the situation and perhaps even different memories of the experience. Therefore, this concept of self indicates that it is people’s preexisting knowledge of themselves that influences the way they perceive the world around them. Lastly, Leary and Tangney (2012) talk about the self as an executive agent or a decision maker that has control over a person’s behavior. This aspect of self refers to self-control and self-regulation, and the mental processes it takes to engage in such behaviors.

Leary and Tangney (2012) attempt to further simplify the concept of self by merging these five concepts into three main parts: attention, cognition, and regulation. The ability to focus one’s attention on oneself is

a phenomenon that other animals do not appear to have, and it is most often manifested as being aware of one's thoughts, feelings, and behaviors. Becoming aware of one's self also allows people to engage in introspection and have cognitions regarding themselves. Lastly, this ability to think about oneself enables people to make their own conscious choices about their thoughts, feelings, and actions. For many psychologists, these three components (attention, cognition, and regulation), when merged, form an area of psychological and philosophical study known as self-knowledge.

Self-Knowledge

According to the Merriam-Webster's online dictionary, the definition of self-knowledge is the knowledge or understanding of one's own capabilities, character, feelings, or motivation (Merriam-Webster, 2011). Although there are many subtopics of the self, self-knowledge is set apart from these by the research regarding the accuracy of one's self-knowledge, or the amount of insight people have into their own intentions, behaviors, feelings, thoughts, and overall mental processes (Vazire & Wilson, 2012). This means that self-knowledge has an impact on multiple aspects of an individual's life, including taking responsibility for one's actions, decision-making, and emotional regulation.

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As one develops, one becomes more aware of both physical and mental capacities and limitations. According to Hart and Matsuba (2012), the earliest evidence of self-knowledge is specific to physical characteristics. For example, the mirror self-recognition test used with infants shows that around 18-24 months, infants are able to recognize differences (a red lipstick mark) to their appearances whereas younger infants would not recognize anything different, as they are not aware of their own appearance in a mirror. In regards to affective self-knowledge, research has shown that older children are more likely to express negative emotions in response to failure, which suggests they are able to conceptualize that they failed a task due to their own limitations. Thus, as humans continue to develop and grow, their insight into their own physical and mental capabilities increases through their experiences and memories.

It is difficult to assess the overall level of truth and accuracy of an individual's self-knowledge due to the subjectivity of self-knowledge (Hart & Matsuba, 2012). According to Wilson and Dunn (2004), there are many limitations to self-knowledge. When viewing the concept of self-knowledge utilizing a psychoanalytic approach, one of the major limitations to self-knowledge is the fact that people are highly motivated

to suppress information and keep certain memories out of their consciousness (Wilson & Dunn, 2004). The ability to block certain thoughts, feelings, or memories out of one's conscious awareness has an obvious impact on a person's self-knowledge because it is directly ignoring and altering the knowledge one has about one's experiences and behaviors. Additionally, the fact that engaging in suppression is an unconscious process makes it even more difficult for individuals to be aware of what they are suppressing, even further altering their self-knowledge.

There are various sources of self-knowledge in addition to one's own personal memories. One way a person can develop self-knowledge is through the analysis of the perceptions others have of him or her. Wilson and Dunn (2004) postulate that when people become aware of the traits that others attribute to them, they are better able to develop an understanding of the traits that make up their personality. However, since some research has shown that most people assume that others' view them in the same way that they view themselves, it might not occur for an individual to look objectively at how they are perceived by their family, friends, coworkers, or acquaintances (Kenny & Depaulo, 1993).

Another way of improving people's self-knowledge is by observing their own behavior. By observing their behavior and the situations in which their behaviors occur, an individual can learn a great deal about their traits, attitudes, and motives (Wilson & Dunn, 2004). However, this method is also a subjective one, since individuals may often not interpret their behavior correctly. This is especially easy to do when people underestimate the power that external forces have on their behaviors (Wilson & Dunn, 2004). For example, some people might assume that they drink coffee from their local coffee shop because they enjoy the taste of coffee, whereas they might actually be drawn to that particular coffee shop because they enjoy the company of the employees who work there. Thus, the road to self-knowledge is not an easy one, and it takes deliberate and active effort on the individual's part to slow down the normally quick process of perceiving oneself.

For the purposes of this investigation, the notion of the self as the "self as me" will become its focus. What will follow is first an overview of personality (a form of the self "as me"), followed by a description of a well-known measure of personality (the 16PF), then move to a recently proposed measure of self-knowledge derived from the 16PF (the SAPP or Scale of Accurate Personality Prediction), and then discuss the studies

designed to evaluate the psychometric properties of the SAPP, to end with the purpose of this research project, which to add to the SAPP's degree of validity.

Personality

Self-knowledge also includes the understanding of one's personality characteristics. According to Back and Vasire (2012), people most often describe themselves by stating their most prominent personality characteristics. In order to fully understand the concept of personality self-knowledge, it might be best to first define the term "personality", and then discuss the many theories of personality that have been developed throughout the past century and a half.

According to Leary and Tangey (2012), it is not surprising that the boundary between personality and the concept of the self has become fuzzy, because the nature of the boundary is highly dependent on the definitions used for the two terms. Within recent years, these lines have become less blurred, as personality psychology has begun to focus more on stable traits of personality rather than focusing on self-relevant processes (Leary & Tagney, 2012). However, this has created a dilemma because by studying one without the other, it is hard to explain people's behaviors that are, for example, self-defeating. Additionally, these lines

are further blurred by the fact that personality psychology is split into two approaches that are often in conflict with each other (Leary & Tagney, 2012). These two approaches can be delineated as 1) those personality theories derived from all encompassing and underlying dynamic processes, and 2) those theories derived from empirically driven methodologies.

Dynamic Personality Theories

As mentioned, this first approach views personality as “a system of mediating processes and structures, conscious and unconscious”, which is a system that is much closer to the theory of the self (Leary & Tagney, 2012). These theories tend to focus more on how these mediating processes explain why people think, feel, and act throughout their lifetime. Sigmund Freud is credited for developing the first personality processes theory, and was followed by many others including Alfred Adler, Harry Stack Sullivan, and George Kelly (Leary & Tagney, 2012).

Freud attempted to develop a comprehensive theory of all aspects of human behavior and attempted to explain how behavior develops in a person as an individual as well as a member of the human race (Ellis, Abrams,& Abrams, 2009,p. 81). Freud’s view of personality consists of three subsystems, including the id, ego, and superego. According to

Freud, the id is the original personality that an individual is born with and it is primarily the biological impulses and drives that every person has (Corey, 2013). The id resides in the unconscious, and thus beyond awareness, and is governed by the pleasure principle or the drive to reduce tension, avoid pain, and gain pleasure (Corey 2013, p. 65). The ego, on the other hand, is in charge of mediating between the instinctual drives of the id and the reality of the consequences of the id's impulses. Thus, the ego is ruled by the reality principle or the logical thinking that it takes to make rational decisions and sift through the possible consequences that could occur by giving into the id's impulsive needs. Last but not least is the superego, or the personality's moral code. This is what people normally refer to as the "conscience" because it represents the values developed from societal and familial influences. The superego's sole function is to inhibit the id impulses while, persuading the ego to pursue realistic goals in the attempt to strive for perfection (Corey 2013).

Additionally, Freud believed the mind is split into three separate tiers including the conscious, preconscious, and unconscious. According to Freud, the conscious includes the perceptions, memories, and beliefs that humans process in the present moment (Ellis, Abrams, & Abrams,

2009). The preconscious is the part of the mind that is not presently in immediate awareness, but can be easily accessed freely at any time.

Lastly, the unconscious is where all the memories of past experiences are stored, and this is where memories are often repressed because the unconscious is outside of conscious control (Corey, 2013).

Another important name in the history of personality theories is Carl Jung, whose theory was heavily influenced by Freud. Although Jung held Freud's theories in high esteem, he disagreed with his emphasis on sexuality, and chose to withdraw from Freud in his attempt to better shape his own theories. Jung agreed with Freud regarding the influence of a person's past on his or her personality, however, he also believed that an individual's future plans of what they aspire to be plays an equally important part in the development of one's personality. Thus, he coined the term "individuation", which refers to "the integration of the conscious and unconscious aspects of personality", and is what Jung believed to be an innate goal for all human beings (Corey, 2013). It was his belief that it is a person's life long pursuit of individuation that encourages he or she to make important life decisions that ultimately shape his or her personality.

In addition to psychoanalytic theories of personality, there are also existential theories that shift back to a more philosophical way of thinking

by exploring human nature. Whereas psychoanalytic theories believe that people's behaviors are driven by their unconscious desires, existentialists believe that people have the choice to act and think in whatever ways they wish to and therefore have complete control over the paths their lives will take (Corey, 2013,). Existentialism also takes the view that there must be a balance between recognizing the limitations and opportunities of human existence, and thus accepting the things in life that are out of one's control, while appreciating and taking responsibility for the things that can be controlled.

Another dimension within the existential approach refers to a human's capacity for self-awareness, and the active choice people make to either expand or restrict their self-awareness (Corey, 2013). Increasing self-awareness involves increasing awareness of all of the factors and motivators that influence a person and their personal life goals. According to this theory, people are constantly striving to create and enhance their own personal identity, yet due to the natural human fear of being alone, many times people feel as though they have lost their identity through their attempt to relate to other human beings. Due to the fact that humans are social beings, existentialists believe that there is an innate fear of being alone. However, it is only when an individual is truly alone that he

or she can come to realize the fact that at the end of the day, a person can rely only on his or herself to create a meaningful life (Corey, 2013).

Behavioral and Empirically Derived Trait Personality Theories

The second approach views the personality as individual differences in basic traits that predispose people to behave in a certain way (Leary & Tagney, 2012). These traits are believed to be positively correlated with the way people behave, so that if a person has a trait of extroversion, they would be expected to be outgoing and friendly interpersonally. Additionally, these traits are assumed to be stable and life-long, and the goal is to identify these traits and be able to describe the ones that people maintain throughout their lifetime, and which make that person distinct from other people (Leary & Tagney, 2012). Trait theories have their origin within a more empirical and reductionistic approach.

During the 20th century, psychology gradually split away from philosophy as theorists began to gravitate towards materialism and empiricism and drew data from experimentalists (Ellis & Abrams, 2009). One of the most significant influences during this time was the work of Charles Darwin, who utilized the study of animals as a means to better understand human behavior. This methodology would later become essential to the field of behavioral psychology. Unlike the psychoanalytic

movement, behaviorists rejected terms such as ego, because they were derived from methods of introspection, rather than from the more objective scientific methods and direct observation. Although behaviorists do not have their own independent definition of personality, they view psychological differences amongst human beings as different only by the way that they learn (Ellis & Abrams, 2009).

John Watson is perhaps one of the most well known behaviorists who attempted to help redefine psychology in a way that would encourage other professions to be respectful of its scientific value. He utilized the work of Pavlov to help prove his view of the human mind as a “blank slate”, advocating that behavior of humans is all that needs to be understood, as there was not currently any scientific evidence to prove the inheritance of traits (Ellis & Abrams, 2009, p.250). Watson’s view of personality included individuals’ basic reactions to moral and social situations as well as behavioral responses to problems that are viewed through their unique lenses that are created by their life history (Ellis & Abrams, 2009,p. 256). Thus, people only differ on the type of reinforcements they received in childhood and personality is representative of a human being’s history of response patterns to multiple life stimuli (Ellis & Abrams, 2009, p. 256). For example, if a child were

rewarded for a certain type of personality measure, such as sensitivity, that person would exhibit sensitivity throughout adulthood. Watson viewed personality as a useful construct in behaviorism because it allows for prediction of a person's behavior. 17

Another influential scientist during this era was B.F. Skinner, who is known to have had the greatest influence on psychology during this time. Unlike Watson, Skinner rejected any behavior that could not be observed, including cognitive activity. Skinner viewed personality for any one individual as an accumulation of learned responses determined by specific reinforcement conditions, and postulated that others with the same reinforcement conditions would likely behave in similar ways, and thus be seen as having similar personalities (Ellis & Abrams, 2009). He rejected the idea of dividing personality into traits or characteristics, as he did not think these measures of individual differences added any useful information to the understanding of human behavior, because at the very least there was not yet any concrete definition of personality characteristics (Ellis & Abrams, 2009).

Raymond Cattell took a different view of personality, as he did not believe that reinforcement conditions alone could explain the social problems he observed around him (Ellis & Abrams). Cattell defined

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personality as “that which permits a prediction of what a person will do in a given situation” and believed that traits are what make up personality (Ellis & Abrams, 2009). He also made a distinction between surface traits and source traits. He defined a surface trait as a trait that is inferred from a series of observed behaviors, such as hostility being inferred from frequent outward reactions to anger. Cattell did not believe that observation alone could account for the underlying structure of personality, so he attempted to empirically and mathematically identify the underlying source traits that influence the manifestation of such surface traits.

To do so, Cattell accepted in part the fundamental lexical hypothesis, which held that the most important human individual differences would come to be encoded as single terms in some or all of the world’s languages. Consequently, he first utilized the Allport and Odbert set of approximately 18,000 adjectives used to describe people. From this list, Allport and Odbert then identified approximately 4500 terms that they believed were reflective of stable, source traits. Cattell then reduced these 4500 words to 35 bipolar clusters of related terms. A series of factor analyses on these 35 clusters and on additional questionnaire data yielded the 16 factors that constitute the current 16

Personality Factor Questionnaire (16PF). Cattell believed every person's personality contains these 16 source traits, and that individual differences in personality are accounted for by the degree to which an individual manifests each of these traits.

The 16 PF

As mentioned, the 16 PF is composed of 16 bipolar primary personality factor scales. These include 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), Self-reliance (Q2), Perfectionism (Q3), and Tension (Q4). In addition, the 16PF includes five global factors, which first emerged when the primary factors were submitted to their own factor analyses, and three validity scales. The global factors include Extraversion (EX), Anxiety (AX), Tough-Mindedness (TM), Independence (IN), and Self-Control (SC) (see Appendix A).

Over the years, the 16PF has been revised several times, with the fifth and latest version being published in 1993, with the 16 primary factors and five global factors remaining the same (Conn & Rieke, 1994). In the most up to date revision, individual items were reviewed for

content issues, and to eliminate and/or replace ambiguous or unclear items. Additionally, items were reviewed for race and gender bias amongst all primary factor scales and the three validity scales (Impression Management, or IM scale, Infrequency or IF scale, and Acquiescence, or ACQ scale) were updated and/or introduced (Conn & Rieke, 1994).

The IM scale, which is used to assess for social desirability, was revised, and as a result, 12 items were selected to be scored only on this scale so there is no overlap with any of the primary factor scales (Conn & Rieke, 1994). Additionally, two new scales were added based on response choice frequencies including the Infrequency (IF) scale and Acquiescence (ACQ) scale. The IF scale was created to assess for inconsistent or random responding, whereas the ACQ scale assess for the frequency of “True” responses to items on the 16PF. Additionally, the final experimental form was given to a group of over 4,000 participants and random sampling was used to create the final normative sample of 2,500 (Conn & Rieke, 1994).

The 16 PF has been widely used as one of a number of multifactorial, multi-dimensional instruments designed to measure human personality. Although the 16 PF is a useful tool to measure various personality characteristics, there are currently very few measures of self-

knowledge, or how aware individuals are of their own personality characteristics.

Development of the Scale of Accurate Personality Prediction (SAPP)

In 2000, the 16PF was utilized by Miller to develop a scale to measure the accuracy with which individuals are able to predict their own personality traits. In Miller's (2000) initial study, subjects were administered the 16PF Fifth Edition, and then they were given the scoring form (see Appendix A) and asked to rate themselves on a scale from one to ten, on the bipolar continuums for the sixteen personality factors and five global factors, leading to 21 self-predicted scores. The participants' 16PFs were next scored, resulting in their obtained personality traits objective measures (Miller, 2000). Finally, all individuals predicted scores were then subtracted from their obtained scores for all 21 of the personality factors, and the absolute differences for each personality factor were totaled to obtain a Scale of Accurate Personality Prediction (SAPP).

Miller (2000) hypothesized that a participant's accuracy of self-knowledge could be identified via his/her SAPP score (Pass, 2013). A low score on the SAPP is considered to reflect a good ability to self-predict personality traits whereas a high score is indicative of a decreased

ability to self-predict. In other words, a lower SAPP score is hypothesized to indicate better self-knowledge. Additionally, in her initial study Miller found that subjects with lower scores on the SAPP (and thus better self-knowledge) scored high on Reasoning, Warmth, Openness to Change, and Extroversion, while those with higher SAPP scores (and thus lower self-knowledge) scored higher on the Vigilance, Tough-Mindedness and Privatness scales.

Since Miller's initial study, there have been numerous studies conducted to establish the SAPP's test-retest reliability, construct validation, and overall generalizability. Test-retest reliability measures whether or not the scores of a test remain relatively the same when a participant is tested twice with a certain amount of time between testing. In 2011, Silva conducted a study to assess the test-retest reliability of the SAPP with a two-week interval between testing. With a subject pool of 62 participants, she found a significant correlation ($r^2=.397$, $p<.05$) between the two SAPP scores, although it was below what is considered acceptable test-retest correlation (Silva, 2011). A replicative study conducted by Hirsch (2012) had a sample size of 58 participants who participated in two trials, again with a two-week interval separating each trial. Her study found a moderately significant correlation between the two SAPP scores

($r^2=.566$, $p<.01$). In 2012, Sverdlova also attempted to replicate Silva's study, although she used a four-week interval between the two testing sessions, and also obtained a significant correlation, however, it was still somewhat below the generally acceptable level, indicating that further research needed to be conducted ($r^2=.466$, $p<.05$). In 2012, Elghossain also looked at the test-retest reliability of the SAPP using 47 participants whom she tested six weeks later, and found a more acceptable and significant correlation between the two SAPP scores ($r^2=.772$, $p<.01$).

There have been, to date, two studies looking at the SAPP's generalizability to unique populations. Rodriguez (2011) aimed to test the generalizability of the SAPP by comparing Miller's mean score to the mean score of a group of 50 Hispanic/Latino participants. His results indicated there was no significant difference between the two means, which suggested the SAPP psychometrics are generalizable to the Hispanic/Latino population. Zeng (2015) conducted a study to assess the generalizability of the SAPP to Asian populations. She collected data from 36 individuals and compared their SAPP scores to three random samples drawn from the archival database. Her findings only produced significant differences in the SAPP scores when compared to the second group. In this study, the Asian sample yielded significant differences

across five factors, including Emotional Stability, Dominance, Social Boldness, Openness to Change, and Independence. This indicated that the participants in the Asian sample were more reactive, cooperative, shy, traditional, and accommodating. Overall, the results lend some support to the hypothesis that the SAPP is generalizable to the Asian population. However, it is noted that due to the small sample size, more research must be conducted to assess cultural differences in the SAPP scores.

Several studies were also conducted since Miller's (2000) original study to test the validity of the SAPP as a measure of self-knowledge. Hood (2001) conducted a study to see if the SAPP is actually a valid measure of this construct. To assess for convergent validity, she compared the SAPP score with the Private Self-Consciousness score of the Self-Consciousness Scale developed in 1975 because she believed self-awareness might be a component of self-knowledge (Anderson & Bohon, 1986). Hood also compared the SAPP score to the Tennessee Self-Concept score (1964) to assess for divergent validity. Her results found that the SAPP score did not correlate significantly with Self-Consciousness Scale. In other words, the SAPP is likely not a measure of the amount that an individual attends to his or her inner thoughts and feelings (Hood, 2001). Additionally, and as expected, there was no

significant correlation with the Tennessee Self-Concept, indicating that the SAPP is not an accurate measure of an individual's self-concept or self-esteem (Hood, 2001).

Anderson (2001) also conducted a study to test the convergent validity of the SAPP by comparing the SAPP score to the Self-Monitoring Scale. She hypothesized that participants who had low scores on the SAPP would have high scores on the Self-Monitoring Scale. The results of her study did not support her hypothesis as no significant correlation was found between SAPP scores and scores on the Self-Monitoring Scale. Glywasky (2003) attempted to replicate Hood's study, and her findings resulted in the same conclusions, with no significant correlations between the SAPP and either of the two assessments. Glywasky (2003) hypothesized that these results could be attributed to the fact that the majority of her sample size were made up of Caucasians and college students and therefore may not be completely comparable to the normative samples of the SCS or the Tennessee Self-Concept Scale.

Additionally, Winter (2002) also attempted to provide construct validation for the SAPP by utilizing a priori group differences, or using two groups that can be assumed to differ on the self-knowledge construct. Winter collected SAPP scores from two groups, one including graduate

students in psychology, and the other graduate students in engineering, with the assumption that psychology graduate students should demonstrate higher levels of self-knowledge. She also hypothesized that psychology graduate students would produce equivalent factor scores that Miller found in low scorers of the SAPP, including warmth, sensitive, trusting, etc. (Pass, 2013). However, Winter (2002) only found one significant difference on the Warmth factor and no significant differences were found between the SAPP scores of the two groups. In a study conducted by Grossenbacher (2006) in which she attempted to replicate Winter's study, she found significant differences in the predicted direction when she included professionals within the two fields.

In 2005, Layton conducted a study in which she obtained the SAPP score of participants, and had each participant contact two significant others who were asked to rate the target subjects on a blank 16PF form. Layton then created a concordance measure with which she took the absolute difference between the target subject's SAPP score and their two significant others' ratings. Correlation between the concordance measure and the SAPP score would indicate self-knowledge, however, her results, while in the right direction, did not yield significant correlations. This indicates that self-ratings versus peer ratings are not a significant measure

of construct validity. Hickey (2005) conducted a similar study looking at the correlation between a concordance measure of family member's predictions of an individual's personality characteristics and an individual's SAPP score, and also found no significant difference.

Blankemeier (2007) attempted to replicate Hickey's study and this time found a significant correlation between the SAPP and the concordance measure, suggesting that the SAPP may indeed have some validity as a measure of accurate self-knowledge. Wolf (2006) replicated Layton's study with a larger sample size and also found a significant correlation between the SAPP and the concordance measure scores, supporting the potential use of the SAPP as a measure of accurate self-knowledge. In a further attempt at looking the construct validation of the SAPP, Afandor (2006) conducted a study which compared the SAPP scores of individuals currently in therapy with their therapists' ratings of their self-knowledge. A positive correlation emerged, but did not reach a significance level. A small sample size (n=29) was offered as a very limiting factor.

Another study looking at the construct validity of the SAPP was conducted by Pass (2013) between the SAPP and Ghorbani's Integrative Self-Knowledge Scale (ISKS) (2008). The results of his study did not find any significant correlation between the SAPP and the ISKS, so he

concluded that it is unlikely the SAPP is a measure of Ghorbani's concept of integrative self-knowledge (Pass, 2013).

In a non-validation, McElligott (2015) derived SAPP standard ten (STEN) scores utilizing the normative database of the SAPP in an attempt to make the SAPP comparable to other assessment measures.

Additionally, she reversed the SAPP scores in the database so that high scores on the SAPP reflect higher levels of accurate self-prediction, or better self-knowledge.

Finally, a study conducted by Mazur (2015) attempted to utilize a series of regression analysis to determine which primary factors of the 16 PF would emerge as valid predictors of the SAPP score. The results of Mazur's study found that the best primary scale predictor of SAPP scores was Suspiciousness (L-), and other significantly strong predictors were Emotional Stability (C+), Sensitivity (I+), and Tension (Q4-).

Statement of Purpose

The purpose of this study was to examine the utilization of the 16 Personality- Factors (16PF) three validity scales as potential predictors of an individual's score on the Scale of Accurate Personality Prediction (SAPP). Any positive results could then be added to the predictors identified by Mazur (2015) so as to improve the derivation of the SAPP

score from the 16PF results alone. The SAPP score was derived from the 16PF as a measure of self-knowledge by comparing the degree of similarity of a participant's predicted and obtained 16PF scores. In this study, a series of multiple regression analyses were utilized, using the current database of over 600 respondents, to determine whether or not any of the three validity scales (Impression Management, Acquiescence, and Infrequency) were significant predictors of an individual's SAPP score, and if so, to see if their inclusion in the derivation of the SAPP score would be indicated.

Method

Subjects

The current study used existing data from the SAPP database that includes the recorded data of 645 respondents. Subjects included college students, individuals from the Melbourne, FL community, and other professionals.

Procedure

The participants in the original study were administered the 16PF. Afterwards, they rated themselves on each of the 16 personality factors and the 5 global factors using a blank 16PF scoring sheet (see Appendix

A). Their predicted scores were then compared to their obtained 16PF scores.

Analysis

The database was divided into two randomly drawn samples, and analyses were performed on each sub-sample separately to provide additional validity.

A series of regression analyses (one general multiple regression, one forward regression, and one backward regression) was performed on each of the two sub-samples, and upon finding compatible results, the two samples were re-combined and the same three regression analyses were run on the entire data set.

Hypothesis

The current literature is lacking regarding the predictability of the validity scales. That being said, due to the lack of correlation between the validity scales and the global factors and 16 primary factors, it is unlikely that the validity scales are strong predictors of the SAPP score. Therefore it was hypothesized that none of the three validity scales (Impression Management, Acquiescence, and Infrequency) will be significant predictors of the SAPP score.

Results

The demographics for participants in this study can be found in Tables 1-3. The tables include the frequencies of each demographic variable for the entire database, Half Sample 1 and Half Sample 2 (excluding the missing data). It is noted that the sample size for the validity scales (387) was significantly smaller than the entirety of the database (641) as raw data for the validity scales was not recorded for much of the sample. The average age of participants for the entire database was 28.59 with a standard deviation of 12.37. Of the whole sample, 58% of participants were Female and 42% were Male. Additionally, 53.8% were Single, 15.2% Married, 3.6% Divorced, 0.8% Separated, and 0.5% Widowed. The ethnic origin of the sample identified as 71.0% Caucasian, 11.9% Hispanic, 9.3% Asian, 2.3% African American, 5.3% Other, and 0.2% Indian American. The majority of the sample listed student as their occupation (53.5%), 18.9% indicated they have a White Collar job, 7.0% Other, 3.7% Unemployed/Homemaker, 2.9% Retired, and 1.4% Blue Collar. Geographically, 58.1% of the participants were from the Southeast region of the United States. The remainder of participants included 9.6% from the Northwest, 2.8% from

the Southwest, 2.9% from the Midwest, and 0.2% were from Canada. In³² terms of years of education, a large portion of the participants indicated they had Graduate/Professional Level Training (39.2%), and 33.3 % indicated they have completed Some College. Additionally, 22.28% reported they had a College Degree, 4.8% reported they completed High School, and 0.2% reported they received less than 12 years of school.

Split Half Multiple Regression Analysis

The database was split into two samples, by odd and even numbers. A Pearson Chi-Square was run on the demographic variables to determine whether or not there were significant differences between the demographics of each half sample (Half Sample 1 and Half Sample 2). The results found that there were no significant differences between the two half samples in 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 $\chi^2(4,475)=1.05, p=.90$.

Additionally, multiple regression analyses (stepwise, backward, and forward) were performed on each half sample to assess the predictability of the three validity scales on a participant's SAPP score. The results yielded were as follows: A stepwise multiple regression was conducted to evaluate whether all three validity scales are valid predictors of the SAPP

score. For Half Sample 1, in Model 1, the Impression Management raw score was entered into the equation and although it was significantly related to the SAPP score ($F(1,192)=14.13, p<.001$), the multiple regression coefficient was .07 indicated that only 7% of the variance of the SAPP score can be accounted for by Impression Management score. Infrequency and Acquiescence did not enter into the equation for Model 1. In Model 2, the Acquiescence Raw Score and Impression Management score were entered into the equation and were significantly related to the SAPP score, $F(2,191)=9.21, p<.001$. However, the multiple regression coefficient (.09) indicated that only 9% of the variance can be accounted for by the Impression Management and Acquiescence raw scores combined.

The results of the stepwise multiple regression analysis for Half Sample 2 were similar. In Model 1, the Infrequency Score was entered into the equation and the results were significant, $F(1,191)=13.08, p<.001$. Results indicated that the Infrequency raw score only accounted for 6% of the variance. In Model 2, Infrequency and Acquiescence raw scores were entered into the equation ($F(2,190)=9.20, p<.001$), and together they only accounted for 8% of the variance.

The results of the forward regression for both halves of the sample also yielded similar statistically significant results. For Half Sample 1, Model 1 included impression management ($F(1,192)=14.13, p<.001$) and Model 2 included impression management and acquiescence ($F(2,191)=9.21, p<.001$). However, in Model 1, Impression Management only accounted for seven percent of the variance, and Impression Management and Acquiescence combined only accounted for nine percent of the variance. In Half Sample 2, Model 1 included Infrequency, and Model 2 included Infrequency as well as Acquiescence. The results showed that Model 1 ($F(1,191)=13.08, p<.001$) only accounted for six percent of the variance, and Model 2 ($F(2,190)=9.20, p<.001$) only accounted for nine percent of the variance.

Similarly, a backwards regression was conducted on both halves of the data. The results of Half Sample 1 indicated that all three variables combined accounted for 11% of the variance. In Half Sample 2, Model 1 included all three variables and the results were significant, $F(3,189)=6.32, p<.001$. In Model 2, Impression Management was removed from the equation, and the results were significant, $F(2,190)=9.20, p<.001$. However, both models produced the nearly identical results, with the variance ranging from 7.7% to 7.9%.

Total Sample Regression Analysis

A split sample multiple regression was conducted on the entire sample to evaluate the predictability of the validity scales on the SAPP score. The overall model was significant $F(1,385)=20.42, p<.001$. The multiple regression coefficient, however, was .05, indicating that Infrequency validity scale only accounted for 5% of the variance of a participant's SAPP score. Additionally, a forward regression produced significant results, $F(2,384)=16.55, p<.001$, and a backward regression model was also significant, $F(3,386)=13.45, p<.001$. Nonetheless, the forward multiple regression coefficient was only .08, indicating the Infrequency and Acquiescence raw scores together accounted for only 8% of the variance. Lastly, the backward multiple regression coefficient was .09 indicating all three validity scales account for only 9% of the variance.

Discussion

A series of multiple regression analyses were conducted on the half samples, as well as the entire sample, to assess the predictability of the three validity scales of the 16 PF Impression Management, Acquiescence, and Infrequency. The results of the multiple regressions were in line with the hypothesis that none of the validity scales would be good predictors of the SAPP score. Nonetheless, the remaining sample size of 387 was

certainly large enough given the number of variables tested (3) to suggest that these validity measures do not add much predictive power to the results found by Mazur (2015). There are several limitations to this study. One limitation is the limited demographics represented in the sample as it consists largely of Caucasian college students. Additionally, the length of time it takes to collect data is somewhat of a limitation on the efficiency of data collection. Further research should focus on expansion of the database and eventually developing a formula that can be utilized to predict a person's SAPP score to ultimately facilitate the process of treatment planning amongst mental health professionals.

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Appendix A

16PF Profile Sheet

A: Warmth	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 Changeable	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, Foreceful, Assertive
F: Liveliness	Serious, Restrained, Careful	1 2 3 4 5 6 7 8 9 10	Lively, Animated, Spontaneous
G: Rule- Consciousness	Expedient, Nonconforming	1 2 3 4 5 6 7 8 9 10	Rule- Consciousness, 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: Privateness	Forthright, Genuine, Artless	1 2 3 4 5 6 7 8 9 10	Private, Discreet, Non- Disclosing

Appendix A (Continued)

O: Apprehension:	Self-Assured, Unworried, Self-Complacent	1 2 3 4 5 6 7 8 9 10	Apprehensive, 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	Tolerates 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
EX: Extroversion	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 Mindedness	Receptive, Open-Minded, Intuitive	1 2 3 4 5 6 7 8 9 10	Tough- Minded, 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

Table 1

Summary of Demographic Statistics (Total Database)

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%
Northwest	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%

Table 1 Continued

College Degree	146	22.6%
Graduate of Professional Training	253	39.2%

Table 2

Summary of Demographic Statistics (Half Sample 1 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 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%