# A COMPARATIVE ANALYSIS OF POSITIVE PSYCHOLOGY AND CLINICAL PSYCHOLOGY ASSESSMENTS

by

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Abstract

This study examines whether the 24 strengths on the Values in Action Classification of Strengths (VIA-CS) correlate with the 10 Minnesota Multiphasic Personality Inventory (MMPI-168) scales. The VIA-CS attempts to capture one's positive values and virtues, while the MMPI-168 attempts to measure maladaptive personality characteristics. This research also investigates the differences and similarities between the VIA-CS scores obtained by the research group - twenty-six (26) inmates at the Sudbury District Jail and the control group - seventy-two (72) volunteer participants, who are students recruited from the Laurentian University student population. Canonical Correlation was used to assess the relationship between the two sets of variables. In addition a MANOVA of the MMPI-168 scales by population group was conducted to measure if there were differences between the two groups. The findings reveal very little meaningful information connecting the tests. One test cannot predict the other. The results suggest that the VIA-CS assessment method can add value to the clinical assessment process. In practical application, balancing potentially negative clinical findings with the positive strengths of the VIA-CS may promote better outcomes in the therapeutic experience.

**Keywords:** positive psychology, clinical psychology, assessment

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# Introduction

## Purpose, Scope and Subjects

This research investigates whether the Values in Action Classification of Strengths (VIA-CS), a positive psychology assessment tool, can enrich a traditional clinical psychology practice that currently relies on assessment using the Minnesota Multiphasic Personality Inventory (MMPI-168). At issue is the question - can the VIA-CS add something important to the toolkit of psychologists? To the extent that one can predict VIA-CS responses using the MMPI-168, the VIA-CS can be construed as a "positive" labelling of knowledge that has already been demonstrated. To the extent that VIA-CS scores cannot be predicted in this way, then this test may be enriching traditional assessment. Accordingly, scale scores from the VIA-CS and the MMPI-168 are contrasted on two populations: twenty-six (26) volunteers from the inmates at the Sudbury District Jail and seventy-two (72) student volunteers recruited from Laurentian University.

## Towards a Theory of Positive Psychology

According to Sheldon & Kasser (2001 cited in Duckworth et al., 2005), the roots of positive psychology have been traced to the humanist psychology movement, which includes Carl Rogers, Abraham Maslow, and Henry Murray among others. However; the obvious links have not always been made - and some aspects appear to be "rediscoveries". For example, many psychologists such as Marie Jahoda (1958) and Carol Ryff (1989, 1995) have advocated a focus on well-being, as well as positive human experience and character. This focus predates what is normally included in positive psychology.

Positive psychology and its related theories, such as the theories of positive traits, wellness and happiness, were conceived to extend applications of clinical psychology beyond the

alleviation of suffering (Duckworth, Steen & Seligman, 2005; Fredrickson, 2009). According to Seligman (2002b), recognized as the father of positive psychology, “The aim of positive psychology is to catalyze a change in psychology from a preoccupation only with repairing the worst things in life to also building the best qualities in life” (p. 3). His idea is that this focus can help identify ways to help everyone improve their lives.

If the promise of positive psychology is that it may help everyone improve, then will it also add to the treatment of people with traditionally defined psychological problems? Historically, several theorists have suggested that positive approaches may complement traditional counseling. Rogers (1961) felt that a positive relationship and recognition of a client’s strengths was central to therapy. However, his system focused on the therapeutic relationship, so this did not lead to extensive theorizing about the nature of wellbeing and happiness. The many historical and current streams of clinical thought developed from the rogerian position have, however, expanded on the idea of wellness.

Wellness

Duckworth et al. (2005) state that “well-being is a process over and above the absence of depression, anxiety, and anger” (p634). Albee (1982) and Cowen (1999) established primary prevention programs based on a concept of wellness. Albee advocated that “efforts at prevention require the ideological decision to line up with those humanists who believe in social change, in the effectiveness of consultation, in education, in the primary prevention of human physical and emotional misery, and in the maximization of individual competence” (1982, p. 1045). Cowen discussed two approaches to wellness, one that focuses on preventing the occurrence of serious psychological disorder, while another is “to create conditions that maximize wellness from the start and promote it consistently thereafter” (1999, p. 10).

Another modern pioneer of wellness theory, Hettler (1984) defined wellness as "an active process through which people become aware of, and make choices toward a more successful existence" (as cited in Myers & Sweeney, 2007, p. 14). Following their literature review, Myers and Sweeney (2007) crafted their own wellness definition as:

> A way of life oriented toward optimal health and well-being, in which body, mind, and spirit are integrated by the individual to live life more fully within the human and natural community. Ideally, it is the optimum state of health and well-being that each individual is capable of achieving. (p. 252)

Cowen and Kilmer (2002) point to the need for clearer empirical definitions of concepts such as well-being and positive psychology. They noted that, despite its important role in raising awareness about the limitations of clinical psychology, positive psychology appears to be insulated from prior developments in related areas such as well-being. They offer a list of 24 studies relating to primary prevention and wellness enhancement which should logically have been incorporated in the foundations of positive psychology. They (and others, for example James Coyne) challenge the "lack of cohesive guiding-theory" among positive psychologists and suggest that important prior writings central to positive mental health are crucial for the development of positive psychology. Some authors (Antonovsky, 1979; Hollister, 1967; and Jahoda, 1958 cited in Cowen and Kilmer,2002) suggest the need for "the development of cohesive, internally consistent, and comprehensive theory to guide future development of a robust contributory positive psychology" (p. 458). This critique matters because a focus on "happiness", a concept which is not entirely understood, may in fact limit the contribution of positive psychology.

In advance of a comprehensive theory, there is a growing body of research proposing links between the experience of positive emotions, improved relationships, work productivity, and physical health. Fredrickson (2009) suggests that positive emotions enable people to be more open and creative, and in turn, facilitates the development of new skills and behaviours through which they can flourish. Individuals experiencing more positive emotions and optimism have increased longevity (Giltay, Geleijnse, Zitman, Hoekstra, & Schouten, 2004; Danner, Friesen & Snowdon, 2001). Happy people have strong social connections with friends, spouses, neighbours, and relatives (e.g. Fowler & Christakos, 2008). Fowler and Christakis (2008) even claim that happiness spreads throughout social networks. A happy life maximizes feelings of pleasure and reduces pain (Seligman, 2002b).

Duckworth et al. (2005) propose that happiness involves three domains, including the pleasant life, the engaged life and the meaningful life. The pleasant life involves “positive emotion about the past, present and future” (Duckworth et al., 2005, p. 635). The engaged life involves the use of strengths and talents such as kindness and integrity which lead to what Aristotle referred to as “the good life”, a life in which we communally aspire to reach our intellectual and moral virtues. A meaningful life involves belonging to and serving institutions that enable positive human behaviour.

To the extent that positive psychology theorists are justified in assuming that happiness and wellbeing are conceptually and practically separate from the concepts of pain, suffering, and dysfunction studied in traditional clinical psychology, they require a new set of tools to identify strengths and to heighten life experiences. A broad range of instruments have been developed to support these processes; for example the Satisfaction with Life Scale by Diener et al. (1985 cited in Duckworth et al., 2005), the Fordyce Happiness Measures (Fordyce 1988 cited in Duckworth

et al., 2005) and the Classification of Strengths (Seligman, 2004 cited in Duckworth et al., 2005). Primarily, these instruments have been used in studies that have not targeted individuals with a clinical psychological diagnosis.

Duckworth, Steen and Seligman (2005) contend that positive interventions are "justifiable in their own right", and they may also be useful to "supplement direct attempts to prevent and treat psychopathology and indeed, may covertly be a central component of good psychotherapy as it is done now" (p. 629). They argue for a "build-what's-strong" approach, rather than limiting therapy to a "fix-what's-wrong" approach (p. 631). These authors believe that even individuals experiencing significant struggles want to feel positive emotion and live fulfilling lives: they want to build on their strengths in order to go beyond the alleviation of suffering to achieve well-being and function optimally. From the perspective of Duckworth et al. (2005),

> Viewing even the most distressed persons as more than the sum of damaged habits, drives, childhood conflicts, and malfunctioning brains, positive psychology asks for more serious consideration of those persons' intact faculties, ambitions, positive life experiences, and strengths of character, and how those buffer against disorder. (p. 631)

Research undertaken by Fredrickson (2009) demonstrated that positive emotions build resiliency and contribute to improved relationships and overall health. She developed the "broaden and build" theory of positivity partly to explain how to generate a meaningful and positive life. According to Fredrickson, "the first core truth about positive emotions is that they open our hearts and our minds, making us more receptive and more creative" (2009, p. 21). The second core truth, Fredrickson notes is that "positivity transforms us for the better" through the

development of “new skills, new ties, new knowledge and new ways of being” (2009, p. 24). Fredrickson suggests that a “tipping point” exists which predicts whether individuals will languish or flourish. Working with Marcial Losada, Fredrickson estimated that this tipping point is reached with a positivity ratio of 3 to 1. That is, at least three positive communications or events for each negative communication event. According to Fredrickson, most people fall short of the 3 to 1 ratio that marks a flourishing life. She claims that individuals can reduce negativity, increase positivity, and increase their ratio to unleash “flourishing possibilities” (p. 179). Learning how to find and enhance positive emotions is one of the stated goals of positive psychology.

There are many reasons why positive psychology may be complementary to clinical psychology. As advertised, it expands treatment beyond addressing weaknesses and treating diseases, and moves clients beyond just fixing what is wrong. It applies scientific methods to improve human wellbeing, so that clients can live, work and play more productively and happily, and develops better relationships in the process.

## Assessment Instruments

### Values in Action Classification of Strengths (VIA-CS)

The reference most often used in clinical psychology is The Diagnostic and Statistical Manual of Mental Disorders (DSM). It provides researchers and clinicians with a common language with which they can communicate about psychological disorders. To provide a positively focused alternative, Peterson and Seligman (2004) developed the Character Strength and Virtues (CSV) framework. The CSV classifies character strengths and virtues. The CSV is focused on helping people recognize and build upon their strengths, so that in turn, they can learn how to capitalize on them (Snyder & Lopez, 2009). The CSV offers a better understanding of

often-neglected aspects of their personality, which they can use to help themselves and others. This is in sync with the overall goal of the positive psychology movement, which aspires to make an individual's existence more fulfilling, rather than merely treating mental illness (Snyder & Lopez, 2009).

Peterson and Seligman (2004) created the CSV though a wide-spread literature review. They conducted an in-depth search of literature for words that address good character in the realms of "psychiatry, youth development, philosophy and psychology" (Peterson & Seligman, 2004, p. 15). In addition, they researched popular culture sources including Hallmark greeting cards, Norman Rockwell prints, graffiti, personal ads, and organizations and clubs such as Girl Guides and Boy Scouts, and even Pokémon characters (Peterson & Seligman, 2004). These themes contributed to the character strengths of empathy, inclusivity, and positivity.

Peterson and Seligman (2004) adopted a hierarchical system of classification ranging from concrete and specific to more general and broad categories. Their system involves six core values which make up the broadest categories; each value is among those appreciated by moral philosophers and theologian. They did not include characteristics that are not valued across all cultures such as talent and intelligence; cleanliness, and frugality. In the next level in the hierarchy, below the six core values, Peterson and Seligman (2004) identified character strengths, which are, "the psychological processes or mechanisms that define the virtues" (p. 13). In order to further reduce their long list of character strengths, Peterson and Seligman (2004) developed ten criteria, where strengths must contribute to a sense of a fulfilling life or must be intrinsically valuable. This resulted in a list of 24 character strengths. Finally, they performed "an exploratory factor analysis of scale scores using varimax rotation" (Peterson & Seligman,

2004, p. 632). The resulting model was then transformed into a questionnaire named Values in Action – Classification of Strengths (VIA-CS).

The VIA-CS consists of 240 items which measure the 24 character strengths. For each strength there are ten items. Participants are asked to endorse each item on the VIA-CS in terms of "whether the statement describes what you are like". Participants respond to items using a 5 point Likert scale ranging from (1= very much unlike me, 5= very much like me). Sample items include "I find the world a very interesting place", which measures curiosity, and "I always let bygone be bygones", which measures forgiveness. Scores can range anywhere from 10 to 50 points for each of the 24 strengths. A higher score on a scale would indicate that the participant more strongly identifies with that scale's associated strength. It does not mean that they are necessarily good or effective at expressing these virtues, just that they value them. The results are delivered to each participant at the completion of the survey. Feedback is offered for the signature strengths, but not for the lesser strengths. The individual's results are ranked in order of the character strengths from 1-24, with the top 4-7 strengths considered "signature strengths" (Peterson & Seligman, 2004). The complete inventory takes approximately 30 to 40 minutes to complete. The VIA-CS (and now the 120 item VIA-IS) has been available since 2001 free on-line, or for a fee if you choose to purchase more information regarding the results (www.vcharacter.org).

Peterson and Seligman (2004) maintain that the VIA-CS focuses on what is right about people by examining the character strengths that contribute to an improved quality of life. These creators of the VIA-CS suggest that knowing your personal character strengths provides powerful information: Our best strengths greatly contribute to our life decisions, preferences, and

actions (Mayerson, 2011). Using a client's strengths to complement their therapy may assist in alleviating their symptoms (see especially Rashid, 2010; Rashid, 2015).

## Minnesota Multiphasic Personality Inventory MMPI

The Minnesota Multiphasic Personality Inventory (MMPI) is the gold standard and the most used and researched standardized psychometric test of adult personality and psychopathology (Graham, 1983). The MMPI, published in 1942 (Hathaway & McKinley, 1943) and its iterations, have been the prevalent industry-standard personality test employed in the field of mental health for the last 70 years. Psychologists and other mental health professionals use various versions of the MMPI for research purposes and to develop treatment plans. It is also used to assist with differential diagnosis, help answer legal questions (forensic psychology), and to screen job candidates during the personnel selection process.

The Minnesota Multiphasic Personality Inventory (MMPI) was developed to assess characteristics that reflect an individual's personal and social maladjustment, and to determine an individual's mental health status and potential need for hospitalization. It was developed as a diagnostic tool for the assessment of abnormal behaviour, psychiatric problems and mental illness; for example, depression, paranoia, mania, and psychopathic deviation – the domain of clinical psychology. The MMPI was not grounded in a particular theory; rather, the authors used an "empirical keying approach" involving the development of scales derived from responses of patients with diagnosed pathologies. The instrument has undergone significant revision since its publication in the early 1940s, and in 1989 the MMPI-2 was published. MMPI questions are classified using ten scales (see Table 1: MMPI Scales 1 to 10).

Table 1. MMPI Scales 1 to 10

| Scale | Scale Title and Description |
|---|---|
| 1 | Hypochondriasis: to provide indicators of hypochondria—a preoccupying concern with the health of one's physical body |
| 2 | Depression: to indicate levels of depression or dissatisfaction with one's life |
| 3 | Hysteria: to identify the presence of hysteria in stressful situations |
| 4 | Psychopathic Deviate: to measure social deviation (disobedience), lack of acceptance of authority, and amorality |
| 5 | Masculinity/Femininity: initially used to identify homosexual tendencies (was thought of as social deviation), now androgyny |
| 6 | Paranoia: to identify paranoid symptoms such as suspiciousness, feelings of persecution, grandiose self-concepts, excessive sensitivity, and rigid attitudes |
| 7 | Psychasthenia: to measure excessive doubts, excessive contemplation, compulsions, obsessions, and unreasonable fears. (The scale is discontinued.) |
| 8 | Schizophrenia: to identify schizophrenic patients and characteristics of schizophrenia |
| 9 | Hypomania: to identify characteristics of mild mania or overexcitement and related conditions, such as bipolar. |
| 10 | Social Introversion: to identify the desire to withdraw from social contacts and responsibilities |

The MMPI-168 is a subset of the MMPI consisting of the first 168 questions from the Form R test. It was first applied by Overall & Gomez-Mont (Overall & Eiland, 1982). The MMPI-168 significantly reduces the administration time needed. This matters because reducing the testing period can reduce stress in test subjects who may be suffering from mental health

issues. As noted by Overall and Eiland (1982), the shortness of the assessment and ease of scoring facilitate the ability to use the instrument routinely in screening. These factors are useful when testing individuals who have issues with attention. Studies have found the abbreviation of the MMPI maintains the integrity of the testing; for example, "[f]actor structure… and the discriminant validity of the abbreviated test have been found comparable to that of the conventional MMPI" (Overall, Butcher & Hunter, 1975; Overall et al., 1976 in Overall & Eiland, 1982). This shorter version of the MMPI is used in this research.

It is important to note that the MMPI-168 is designed to detect deviations from normality (Duckworth & Anderson, 1986); it therefore has less application in a normal population. To put the MMPI to a useful comparison with another test it is important to use a sample in which both normal and "abnormal" people are represented. Individuals who are incarcerated are a marginalized segment of our society with higher levels of mental illness, and lower levels of intelligence, socioeconomic status, and resilience, and as such would not be considered the norm. Conversely, university students, as a comparison control group, are somewhat more privileged, with lower levels of mental illness and higher levels of intelligence, socioeconomic status, and resilience. Both of these groups are included in the present study to ensure diversity.

## Literature Review

Traditionally, psychological intervention begins with assessment. This involves identifying mental illnesses when they are present, along with the personal or social factors which may contribute to them. This information, in turn, provides the basis for planning treatment. In much the same way, psychologists use tests and other assessment tools to observe and measure client's behavior in order to arrive at a diagnosis and develop a treatment plan.

Underlying causes of mental illness are not always well-defined and can be quite complex. For example, a child who is experiencing reading problems in school may have dyslexia, an attention disorder such as attention-deficit-hyperactivity disorder (ADHD), an anxiety disorder, or a poor environment. Psychologists use psychological tests and assessments to better understand the nature of the problem, and to develop ways to address it. For example, the child experiencing difficulty reading could benefit from remedial help from a tutor or behavioral therapy to learn how to self-monitor their actions, control impulses, and improve their attention. The outcome would be a happier child with improved academic performance.

Clinical psychologists have developed a range of diagnostic tools, such as the Beck Depression Scale which detects depression (Beck, Steer, 1993), Mini-mental State which detects dementia (Folstein, Folstein, & McHugn, 1975), and the Adult ADHD Self-report Scale which detects Attention Deficit Disorder with Hyperactivity (Kessler, et al., 2005). The most widely used and researched test of psychopathology is the Minnesota Multiphasic Personality Inventory (MMPI) (Camara, Nathan, Puente, 2000); however, the capacity to detect psychopathology is only the first step in the mental health process.

Generally, assessment showing mental illness leads to therapy, while assessment not showing mental illness is ambiguous. It doesn’t establish the well-being of the client, and does not provide guidance about how to improve life. Seligman (2004) notes that clinical practitioners have traditionally, treated mental illness “within a disease-patient framework of repairing damage: damaged habits, damaged drives, damaged childhood, and damaged brains” (p. 4). Positive psychologists propose a complementary approach focusing on the well-being and happiness of clients through the development of positive personal traits and values.

Positive Psychology and the VIA-CS

Martin Seligman is known as the founder of positive psychology. According to Seligman (2002a) “the time has finally arrived for a science that seeks to understand positive emotion, build strength and virtue and provide guideposts for finding what Aristotle called the ‘good life’” (p. ix). Theories of positive psychology are linked as far back as 2,500 years ago to leading philosophers such as Aristotle, Confucius, Socrates and Buddha. Seligman (2002a) describes three pillars of positive psychology: the study of positive emotion; the study of positive traits, particularly strengths and virtues; and the study of institutions that facilitate their development. Proponents of positive psychology suggest the need to “broaden the focus of clinical psychology beyond suffering and its direct alleviation” (Duckworth, Steen & Seligman, 2005, p. 629). Similarly, Hubka and Lakaski, (2013) and Csikszentimihaly & Csikszentimihaly (2006) advocate that positive psychology provides a useful alternative to the pathological orientation that has traditionally permeated clinical psychology. Further, Csikszentimihaly & Csikszentimihaly (2006) purport that positive psychology is associated with humanistic psychology as well as evolutionary psychology in terms of developing social awareness. Peterson & Seligman (2006) emphasize that positive psychology was not developed to replace any other fields of psychology, but rather to complement them.

Positive psychologists have themselves developed an approach to assessment. One of the best developed of these is the Values in Action questionnaire (VIA-CS; now the VIA-CS-IS). The VIA-CS was designed to identify an individual’s profile of character strengths. It was created by researchers in the field of positive psychology, in order to operationalize their Character Strengths and Virtues Handbook (CSV) (Peterson & Seligman, 2004). Positive psychology did not have a common vocabulary for discussing measurable positive traits before

2004. Clinical psychology benefited from the creation of DSM, as it provided researchers and clinicians with the same set of language from which they could talk about the negative.

As a first step in remedying the disparity between traditional and positive psychology, Christopher Peterson and Martin Seligman set out to identify, organize and measure character (Peterson & Seligman, 2004). Peterson and Seligman (2004) developed the Values in Action Classification of Strengths (VIA-CS) through identifying character strengths and virtues by brainstorming with a group of well-known positive psychology researchers. They began investigating how people interpreted human virtue by looking at ancient cultures (including their religions, politics, education and philosophies) for evidence. They searched for virtues and traits that were present across cultures and are stable over time.

Peterson and Seligman (2004) generated a vast list of human strengths. They consulted with Marcus Buckingham of the Gallup Organization who identified 34 main themes of excellence in the workplace. These greatly contributed to the character strengths of empathy, inclusivity, and positivity. As well, Peterson and Seligman (2004) conducted an in-depth literature search for words that directly addresses good character in the realms of, "psychiatry, youth development, philosophy and psychology" (p. 15). The researchers included searching for character strengths in literature and popular culture such as in Hallmark greeting cards, personal ads, Norman Rockwell posters, the Boy Scouts and Girl Guide organizations, graffiti, bumper stickers and even profiles of Pokémon characters (Peterson & Seligman, 2004).

Seligman (2002a) identified six virtues which he claims are important to achieving enduring happiness: wisdom and knowledge, courage, love and humanity, justice, temperance, and transcendence. He wrote that there are several routes or "strengths" that individuals can develop to acquire these virtues. The cluster of strengths associated with wisdom and knowledge

includes curiosity, love of learning, judgment, ingenuity, and social intelligence and perspective. The cluster of strengths associated with courage includes valor and bravery, perseverance, and integrity. The love and humanity cluster of strengths includes kindness and generosity, and loving and allowing oneself to be loved. Justice is achieved through citizenship, fairness and equity and leadership. Temperance involves self-control, prudence, as well as humility and modesty. Finally, transcendence utilizes strengths such as appreciation of beauty and excellence, gratitude, hope, spirituality, forgiveness and mercy, playfulness and humor, and zest or passion. Seligman (2002a) suggested that people possess signature strengths that define their character. The VIA-CS was selected as one of the key tools applied in this research study.

Peterson and Seligman (2004) adopted a hierarchical system modeled after the Linnaean classification of species, which ranges from being concrete and specific to more general and broad categories. They proposed six core values as the highest category; these happen to be the ones that are the most appreciated by moral philosophers and theologians. However, Peterson and Seligman did not include characteristics which are not valued across all cultures such as talent, intelligence, cleanliness, frugality and silence. Peterson and Seligman (2004) then moved down the hierarchy to identifying character strengths, which are, “the psychological processes or mechanisms that define the virtues” (p. 13). It is the strengths which are used to make the ingredients of the virtues.

To further reduce the long list of character strengths, Peterson and Seligman (2004) developed a list of 10 criteria where strengths must contribute to a sense of a fulfilling life or must be intrinsically valuable. Twenty-four character strengths met the criteria. The researchers distributed the 24 character strengths between the six virtue categories by looking for similarities between candidate’s strengths and the virtues. It was only after organizing the character

strengths to the virtues, that the researchers performed “an exploratory factor analysis of scale scores using varimax rotation,” from which five factors emerged (Peterson & Seligman, 2004, p. 632).

Applications of Positive Psychology

Peterson and Seligman (2004) acknowledged that the major goals of positive psychology are to assist individuals to “cultivate and sustain the good life” (p. 640). The VIA-CS delivers a practical measure to evaluate the efficacy of these positive interventions. For example, in considering the inmate population and the use of the character strengths such as inclusion and reciprocity, these strengths may assist in helping individuals who have been incarcerated identify with communities’ goals and want to commit to community service (Eccles & Gootman 2002 cited in Peterson & Seligman, 2004). Peterson and Seligman proposed that programs using the VIA-CS may find unanticipated benefits; and that this in turn may facilitate objective evaluation of its usefulness.

Significant research shows that, using positive psychology, individuals who embrace and exercise their character strengths have better, more fulfilling relationships, accomplish more of their own goals, and feel engaged and empowered at school and work (Peterson & Seligman, 2004). This research also indicates that utilizing character strengths can lead to improvements in health, happiness and overall well-being. It is important to note that, while clinical counseling may be terminated as a client is considered well, positive psychology does not stop; rather, it appears to apply a continuous self-improvement approach which complements clinical psychology.

Development of the VIA

Peterson and Seligman (2004) were adamant their character strengths be quantitative: “It was paramount that the strengths be both universal across cultures and measurable” (Niemiec, 2014, p. 24). In 2000, Peterson and Seligman (2004) conducted VIA-CS preliminary tests with a test of group of 250 adults. Questions relating to items with the lowest correlations relating to the other items in the same scale of interest were removed. Peterson and Seligman repeated this method of items with the lowest correlations until Cronbach’s alpha for all scales exceeded .70. They reverse-scored 3 items in each of the 24 scales. The VIA-CS, test-retest correlations for all scales during a 4-month period were > .70 (Peterson & Seligman, 2004). This is considered to indicate acceptable to good reliability.

The most extensive VIA-CS analyses of its kind was undertaken by McGrath (2012) to address inconsistencies in the latent structure of the VIA-CS. The scale-level and item-level analyses of a sample size of 458,998 adults who completed online questionnaires was conducted. It is the most substantial factor analysis of VIA-CS. McGrath (2012) offered the following:

> “The scale-level analyses produced findings similar to those of previous studies, but raised concerns about multi-dimensionality in the scales. Item-level analyses suggested an alternate set of 24 scales, 20 of which overlapped substantially with existing VIA-CS scales. A second-order analysis suggested five factors, including a new one labeled Future Orientation, versus the original six virtues proposed in the development of the VIA-CS.” (p. 1)

Park, Peterson, Seligman and Steen (2005) note they were surprised by unexpected findings in their 2005 Positive Psychology Progress report: “A remarkable similarity in the relative endorsement of the 24 character strengths by adults around the world and within the

United States" (p. 411). A comparison of the rank order of strengths between the U.S. and 40 other countries, found the relative pattern of rank ordering did not differ: "The correlations of the rankings from nation to nation are very strong, ranging in the .80s and defy cultural, ethnic and religious differences" (Park et al., 2005, p. 411). These findings would lend support to Peterson and Seligman's (2004) assertion that they had developed a universal classification system.

Park et al. (2005) were optimistic because their findings would reveal "something about universal human nature and/or the character requirements minimally needed or a viable society" (p. 412). The analyses of scores from participants in 40 countries does provide some insight into the human condition. Globally, the most commonly endorsed strengths were kindness, fairness, authenticity (honesty), gratitude, and open-mindedness (judgment), with the lesser strengths being prudence, modesty, and self-regulation (Park et al., 2005). The researchers noted a primary discrepancy among the southern United States, where there is a stronger religious strength among adults and youth alike compared to the rest of the U.S. population. Further, hope, zest, gratitude and love were the most associated with positive life satisfaction for the majority of participants across the 40 countries group. Conversely, strengths associated with knowledge, such as love of learning and curiosity, were least correlated with life satisfaction. (Park et al., 2005).

A second notable VIA-CS study led by Seligman, assessed 17,056 adults for age and gender trends (Linley et al., 2007). Between 2002 and 2005, the respondents, ages 18 to 65+, based in the United Kingdom completed the VIA-CS online. The researchers found strength scores increased with the age of the respondents with wisdom and knowledge having the strongest correlations (Linley et al., 2007). One exception was humour, which had a negative trend with aging participants. In the second major analysis, found, with the exception of

creativity, women scored higher than men on interpersonal strengths—kindness, love, and social intelligence (Linley et al., 2007). However, the researchers noted the difference was so minimal (g2 < .01) as to be irrelevant. Both genders had similar score values in each strength, and shared the top five strengths of open-mindedness, fairness, curiosity, love of learning and creativity. The identification of these trends, consistent with other research, can be considered very weak evidence for validity. No direct validation of the various scales has yet been reported.

Not all researchers agree with the validity and reliability of the VIA-CS and its six virtues factor structure (e.g. Shryack, Steger, Krueger & Kallie, 2010). While most of the 24 strengths could be assessed through questionnaires, behavioral observation, peer-reports and clinical interviews, early assessments were conducted in English only requiring many of the global participants to respond in a language other than their native one. This may have had an effect on early test scores which shaped the VIA-CS. Additional concerns acknowledged by Peterson and Seligman (2004) involved their struggle with the difficulty in assessing humility, modesty and bravery strengths.

One of the weaknesses of the VIA-CS is the length of time to complete which is confounded by the requirement that all 240 questions need to be completed to obtain accuracy. LaFollette (2010) notes, “For test takers that are easily distracted or find focusing difficult, the task of completing a lengthy and relatively time consuming test may prove difficult” (p. 6). To accommodate these concerns and others, researchers at the VIA Institute as well as other research groups have developed shorter versions of the full VIA-CS survey.

The VIA-120, VIA-72 and VIA Brief Strengths Test

The first shorter version reduced the number of items in half by selecting five questions from the original ten questions per scale with the most elevated item-scale correlations. It was

consequently named the VIA-120 Survey. The second shorter version reduced the number of items to 72 by selecting three questions from the original ten questions per scale that had the most elevated item-scale correlations. It was subsequently named the VIA-72 survey for its 72 test items. The shortest version of the VIA, the VIA Brief Strengths Test reduces the questions to a brief twenty-four items—one item per scale, and is used by organizations requiring a brief strength-based survey, such as the University of Pennsylvania Authentic Happiness Questionnaire Center.

To assess the validity of the shorter versions, preliminary psychometric testing was performed using the VIA-120 and VIA-72 abbreviated versions of the full length VIA survey (VIA Institute on Character, New Shorter VIA Surveys: Psychometrics, 2014). Internal consistency coefficients were calculated for the VIA-120 and the VIA-72 surveys then compared with the internal consistency coefficients of the original VIA 240 question survey. According to the VIA Institute on Character (2014), the results averaged across all scales determined the VIA long form survey's Internal Consistency was .83, the VIA-120 survey's Internal Consistency was .79 and the VIA 72 survey's Internal Consistency was .75 indicating an acceptable to good internal consistencies.

Further, the initial validity coefficients of the VIA-120 and their VIA-72 surveys were investigated with the VIA Survey long form, a set of Activities Questions and the Flourishing Scale. The Activities Questions consisted of two exemplar activities for each of the character strengths. Diener et al. (2010) developed the Flourishing Scale to measure well-being by assessing psychological flourishing and feelings—both positive feelings, negative feelings, and the difference between the two. Their participants in the study were 689 college students from six locations. The Flourishing Scale consists of a brief eight items and provides a psychological

well-being score to measure the respondent's self-perceived success in significant areas such as relationships, self-esteem, purpose, and optimism. Diener et al. (2010) described the measure as having "good psychometric properties, and is strongly associated with other psychological well-being scales" (p. 143).

The VIA Institute on Character (2014) published the outcome of the preliminary validity testing averaged across all scales on a sample of 301 adult participants (75% female; 53% married; modal annual income $41,000 - $80,000) and found similar results among the three forms, as follows:

Table 2. VIA validity estimates.

| VIA Survey | Long Form | Activities | Flourishing |
|---|---|---|---|
| Long Form | 1.0 | 0.55 | 0.43 |
| VIA-120 | 0.93 | 0.50 | 0.39 |
| VIA-72 | 0.87 | 0.48 | 0.36 |

In addition, The VIA Institute on Character (2014) published internal consistency coefficients among the five character strengths of zest, curiosity, hope, love and gratitude for the VIA long form, VIA-120 and the VIA-72 surveys. Much research has found these five character strengths have significant correlations with the subject's life satisfaction. The VIA Institute on Character (2014) published results were as follows:

Table 3. VIA consistency estimates.

| VIA Survey | Zest | Curiosity | Hope | Love | Gratitude |
|---|---|---|---|---|---|
| Long form | 0.53 | 0.36 | 0.45 | 0.39 | 0.38 |
| VIA-120 | 0.57 | 0.41 | 0.47 | 0.41 | 0.44 |
| VIA-72 | 0.54 | 0.35 | 0.48 | 0.40 | 0.42 |

Again, the results were similar suggesting that the VIA long form, VIA 120 and VIA-72 “are substantially equivalent to the original long version as to internal consistency reliability and validity measures described” (VIA Institute on Character, 2014, para.6).

Character Strengths Rating Form

Ruch, Martínez-Martí, Proyer, and Harzer (2014) developed a German version of a VIA brief test, the Character Strengths Rating Form (CSRF), in order to include a measure of character strengths as part of a larger scale, longitudinal study they were conducting. The CSRF is a 24-item rating form of character strengths, developed using a representative sample of 211 German-speaking adult subjects. Ruch et al. found the CSRF had similarities to the VIA-IS in terms of descriptive statistics, relationships with socio-demographic variables, and associations with life satisfaction (Martinez-Marti & Ruch, 2014). Their means correlated at .91, while their standard deviations correlated at .80 and rank-order correlations of the correlations of the two tests with age, education, and life satisfaction were .74, .76, and .84, respectively, and the rank-order correlation of the associations of the five factors with life satisfaction was .90. (Ruch et al., 2014). They concluded the CSRF demonstrated to be a valid instrument for assessing character strengths, and recommended it would be valuable as a brief measurement of character strengths.

Brief VIA Youth Survey

The VIA Institute on Character researchers developed a brief, youth oriented version of the original VIA Youth Survey for ages 10 to 17 in order to improve its usability for youth.The VIA survey was reduced to a 96-item brief form using four items from each of the 24 character strengths scales. The items were selected by sampling 12,549 youth surveys and selecting the four items with the most elevated corrected item-total correlations from each of the 24 character strength scales (Via Institute on Character, Psychometric Data-Youth Survey, 2014). Further, the researchers reworded the test items to make them easier to comprehend.

The new brief youth form was compared to the original VIA Youth Survey in two samplings of 157 and 172 15-year old subjects. The long and short versions were administered to each sample and scored along with a measure of life satisfaction. For the 157 sample: the mean reliability alpha coefficient was 0.87 for the brief form and 0.82 for the long form; the mean correlation of the brief form with the long form was 0.85; and, the mean correlation with life satisfaction was 0.39 for the brief form and 0.38 for the long form (VIA Institute on Character, Psychometric Data-Youth Survey, 2014).

For the 172 sample: the mean alpha coefficient for the brief form was 0.84 and was 0.82 for the long form; the mean correlation of the brief form with the long form was 0.82; and, the mean correlation with life satisfaction was 0.32 for the brief form and 0.31 for the long form. (VIA Institute on Character, Psychometric Data-Youth Survey, 2014). Based on the similarity of the results, the VIA Institute recommends the 96-question VIA Youth Survey for its efficiency.

When examining all the briefer versions and scales, the correlations with their longer versions are very similar. All things being equal, it would be practical when an administration

time of the VIA-CS is a consideration due to subjects, or type of study, i.e. longitudinal study, to use the briefer versions.

Validity of the VIA-IS

While most of the 24 strengths could be assessed through questionnaires, behavioral observation, peer-reports and clinical interviews, early assessments were conducted in English only requiring many of the global participants to respond in a language other than their native one. This may have had an effect on early test scores which shaped the VIA-CS. Another factor which shaped the VIA-IS was that the only limitation Peterson and Seligman (2004) had for item selection was that it did not comprise the scale's internal-consistency reliability. In item analyses, McGrath (2014) expresses concern with the findings: "45 (19.75%) of the 240 VIA-IS items correlated more highly with another scale than on the scale on which they are scored", and cautions Peterson and Seligman's initial criterion is "insufficient to assure adequate discriminant validity for the scales" (p. 3.)

Not all researchers agree with the validity and reliability of the VIA-CS and its six virtues factor structure (Shryack, Steger, Krueger & Kallie, 2010, McGrath, 2012). McGrath (2012) noted inconsistent results in prior studies concerning the underlying structure of the VIA-IS were cause for concern. Peterson and Seligman (2004) themselves acknowledged they struggled with the difficulty in assessing humility, modesty and bravery strengths. McGrath (2012) cites numerous studies (Brdar & Kashdan, 2010; Littman-Ovadia & Lavy,2012; Macdonald, Bore & Munro, 2008; McGrath, in press; Peterson, Park, Pole, D'Andrea & Seligman, 2008; Ruch et al.,2010; Shryack, Steger, Krueger, & Kallie, 2010; Singh & Choubisa,2010) who all found "the latent structure of the VIA-IS suggest a five-factor model that does not correspond well to cultural ideas of virtue" (p. 2).

To that end, McGrath (2012) conducted the largest factor analysis of the VIA Survey to date involving scale-level and item-level analyses of a sample of 458,998 adults (66.46% female with a mean age of 34.36 years, ethnicity unknown) who completed the VIA-IS between 2005 and 2011 and summarizes in his abstract:

The scale-level analyses produced findings similar to those of previous studies, but raised concerns about multi- dimensionality in the scales. Item-level analyses suggested an alternate set of 24 scales, 20 of which overlapped substantially with existing VIA-CS scales. A second-order analysis suggested five factors, including a new one labeled Future Orientation, versus the original six virtues proposed in the development of the VIA-CS (p. 1).

McGrath (2012) indicated there is speculation of a “second-generation model of strengths” with “plans for revision of the VIA-IS to generate a psychometrically more defensible instrument” in the 2014 to 2015 time frame (McGrath, 2014, p. 1).

Martinez-Marti and Ruch (2014) express concern with the lack of research involving the relationship of character strengths and well-being for different age groups, having only found one such study. Character strengths research usually involves students as subjects who are of a particular age range and may be already actively improving on their well-being by attending school. “Based on Erikson’s account of stages of psychosocial development”, Martinez-Marti and Ruch (2014) believe, “strengths may help the individuals adapt successfully to the different stages of life, and their relative importance might be reflected in their relationship with well-being… Nonetheless, empirical evidence on this topic is almost non-existent” (p. 2).

McGrath’s 2014 findings revealed correspondence needs to be improved between self-reported virtue and culture perspectives for the VIA-IS. Lafollette (2010) reminds us it “is important to remember that there is enormous variability within cultures in terms of what an

individual esteems." And cites Peterson & Seligman, 2004's acknowledgement that "there are culture bound virtues like glory, magnificence, and duty, that the VIA does not assess" (p. 4.).

## Clinical Psychology and the MMPI

American psychologist Lightner Witmer first coined the term clinical psychology in 1907, defining it as, "the study of individuals, by observation or experimentation, with the intention of promoting change" (Compas & Gotlib, 2002). The practice of clinical psychology has grown since Witmer's day to become the largest specialized sector of psychology. According to the American Psychological Association [APA] (2013), the clinical psychology field has matured to integrate:

> Science, theory, and practice to understand, predict, and alleviate maladjustment, disability, and discomfort as well as to promote human adaptation, adjustment, and personal development. Clinical psychology focuses on the intellectual, emotional, biological, psychological, social, and behavioral aspects of human functioning across the life span, in varying cultures, and at all socioeconomic levels." (p. 1)

The closely related specialty area of psychiatry differs from clinical psychology in that psychiatrists are medical doctors who undertake a four year residency, and can prescribe medications. Clinical psychologists receive "extensive training in the psychological principles governing human behaviour, in formal assessment of psychological functioning, and in scientific research methods" (Prinstein & Trull, 2013, p. 6). Further psychologists undergo extensive training to study the "consequence of interactions between individuals' biological/psychological/social predispositions and their experiences within the environment" to gain insight into an individual's psychopathology (Prinstein & Trull, 2012, p. 6).

## Applications of the Minnesota Multiphasic Personality Inventory

The Minnesota Multiphasic Personality Inventory (MMPI) was developed in 1942 by Hathaway and McKinley (1943), published in 1943 by the University of Minnesota Press, who continue to own the copyright to this day. The MMPI and its iterations have been the prevalent, industry-standard personality test employed in the field of mental health for the last 70 years. The MMPI-168, a subset of the MMPI consisting of the first 168 questions from the Form R test, was first applied by Overall and Gomez-Mont (Overall & Eiland, 1982). The MMPI-168 significantly reduced the time and resource effort to conduct the personality test. Reducing the testing period can reduce stress in test subjects who may be suffering from mental health issues. The shortness of the assessment makes it easier to use for screening for maladjustments (Overall & Eiland, 1982).

The MMPI has been researched extensively in evaluation of clinical psychopathology (Hathaway & McKinley, 1983). Since the inception of the MMPI, there have been multiple attempts to develop a valid shorter version. In particular, between 1942 and 1974 there were five shorter versions, the Mini-Mult (Kincannon, 1968), the Maxi-Mult (Sepra & Robertson. 1974), the FAM (Faschingbauer, 1973), and the MMPI-168 (Overall & Gomez–Mont, 1974). The last two of these abbreviated versions were shown to be the most versatile and valid (Vincent & Hauser Clinic & Associates, 1984).

## MMPI-168 Validity and Reliability

The MMPI-168 Questionnaire was aptly named as it uses the first 168 items. It conveniently utilizes the standard booklets, scoring sheets, and templates of the full MMPI. There have been over 100 investigations conducted on the MMPI-168 showing high

correspondence with the standard MMPI with correlations ranging from .77 to .97 (Graham, 1977).

The MMPI Codebook was developed to present an actuarially devised system for use with the MMPI-168 to enable the application of MMPI-168 as a significant assessment instrument. The code types were derived from 400 cases, 18 years of age or older, from the Hauser Clinic, a private psychiatric facility. Norms were based on a nonrandomized sample. The authors suggest that the MMPI-168 provides a good instrument for use with individuals who have poor motivation, physical disabilities, and/or issues with literacy. Codes are based on DSM-III classifications.

Marks, Seeman, and Holler (1974) found high agreement when they compared reports of the MMPI and the MMPI-168 from two psychiatric teams consisting of a psychiatrist, psychiatric resident psychologist, and a psychiatric nurse. Consequently, the MMPI-168 can be used not only as a screening device; but, also as a major assessment instrument. When reviewing the abbreviated subscales, they were correlated highly with the full scales of at least equivalent length to those in many commonly used personality inventories. According to them, this would indicate that the MMPI-168 results would be similar to the results of other personality tests.

Persinger and Tiller (2002) evaluated the test-retest reliability of the MMPI-168 on 68 Laurentian University first year students after one month; and 37 patients who had been referred for neuropsychological assessments, after two years. Persinger and Tiller's (2002) study demonstrated that the MMPI-168 profiles of the patients remained salient over time. The authors found that, the correlation coefficients between means of the scaled scores between

administrations were .91 for students and .95 for patients. These findings suggest that, if subjects were retested at a later date, their scores most likely will retain their relative salience.

Other studies have found the abbreviation of the MMPI maintains the integrity of the testing, “Factor structure… and the discriminant validity of the abbreviated test has been found comparable to that of the conventional MMPI” (Overall, Butcher & Hunter, 1975; Overall et al., 1976, cited in Overall & Eiland, 1982, p. 169). The focus therefore needs to be on the psychometrics of the parent instrument, which has been studied in more depth.

When attempting to evaluate the vast amount of literature regarding the validity of the MMPI and MMPI-2, the main issues appear to be related to the construction of the clinical scales. Hathaway, McKinley and Butcher addressed this issue in their overhaul of the MMPI-2 through the development of strategies to augment the interpretation of the clinical scales such as, reliance on code types and subscales (Archer & Wheeler, 2013). In their literature review, Archer & Wheeler cite numerous sources (Archer, 2006; Finn & Kamphuis, 2006; Slimms, 2006; Tellegen et al., 2006; Tellegen et al., 2009) to confirm “the restructured scales and the PSY-5 scales were designed to give a more parsimonious resolution to interpretation problems and appeared to have been successful” (p. 30). Archer and Wheeler (2012) note the Personality Psychopathology Five (PSY-5) was constructed by Harness and McNulty on the conceptual cognates that are reflected in Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association to assess personality psychopathology, and thus improved the validity of the MMPI as a diagnostic tool.

The MMPI-2 was peer reviewed by Robert P. Archer, Professor of Psychiatry and Behavioral Sciences at Eastern Virginia Medical School and published in the Eleventh Mental Measurements Yearbook (1992 Accession Number: test.1020). Much of the review is a

comparison of the MMPI and the MMPI-2, which Archer summarizes, "so far as the standard validity and clinical scales are concerned, the statistical properties of the MMPI-2 with respect to reliability, validity, and standard error are those of its predecessor, for better or worse" (1992, Summary section, para 15). With respect to improvements such as uniform T-scores and the new validity scales, Archer notes, the new features are "genuine improvements. The new validity scales will greatly aid the ascertainment of validity, something the original validity scales were never very good at" (1992, Summary section, para. 16). However, he advises the "standard validity and clinical scales of the MMPI have been carried over, or protected, into the MMPI-2. No efforts were made to re-evaluate the external validity of these measures, or to re-examine the K-correction weights traditionally assigned to five of the standard clinical scales", and cautions, "much work on the validity of the scales remains for future researchers" (1992, Summary section, para. 16, 8). While Archer praises the use of the MMPI-2: the "psychodiagnostician selecting a structured inventory for the first time will find that no competing assessment device for abnormal psychology has stronger credentials for clinical description and prediction", he is concerned for its inventory of normal range personality attributes and concludes, "the MMPI-2 retains all the weaknesses of its predecessor and will, for most purposes, prove less satisfactory than instruments like the NEO Personality Inventory" (1992, Summary section, para. 17).

An issue Archer does not raise, that should be cause for concern is the MMPI-2 requires a minimum eighth-grade reading proficiency. In addition to assessing "the tendency to claim highly unusual attitudes and behaviors as a function of severe psychopathology", the MMPI's F Infrequency scale can detect reading problems along with random or careless responding (Nichols & Kaufman, 2011, p. 4.) However, problems with reading comprehension may lower scores on scale 9 Hypomania, and elevate scores on the Variable Response Consistency Scale

(VRIN) (Nichols & Kaufman, 2011). Nichols and Kaufman (2011) list reading ability as one of the weaknesses of the MMPI-2 and believe "for maximal accuracy and utility of results, the test requires a ninth-grade level of reading ability" (p. 297). According to the Canadian Council on Learning (n.d.), 48% of Canadian adults have low literacy skills, below level 3 which the Organization for Economic Co-operation and Development advises is required to function in a modern society. Of the inmates entering correctional facilities in Canada, 79% of inmates have less than secondary level education and 65% have less than eighth-grade literacy skills. Close to half of the general population and more than half of incarcerated adults do not meet the minimal requirements to effectively complete the MMPI (Literacy and Policing Project, 2008).

Although the clinical scales offer information regarding symptomology associated with psychopathology, the MMPI is limited as it cannot be depended upon fully to generate diagnostic outcomes. For a true diagnosis additional information sources, such as interviews, observations, records, and collateral information from third parties, along with the information from the MMPI are required (Archer & Wheeler, 2013).

## Relationship between VIA-CS and MMPI-168

This review of the literature considered the VIA-CS and the MMPI-168 seperately. There were no studies that investigated their relationship found (using psychinfo, Web of Science and Google) In fact, there there were no studies including both tests (as of 2014). If the two tests are correlated, it means that, despite the great efforts to tap into something new, the makers of the VIA are effectively relabelling traditional psychology concepts in a positive way. If the two tests are not correlated then the VIA represents something new, and that it may add something to the world of psychology.

# Methods

## Study Participants

As per the Tri-Council Policy Statement (TCPS) of Laurentian University, ethics approval for this study was given by the Laurentian University Research Ethics Board (REB). An Ethics Review was also submitted and approved by the Administrative Support, Program Effectiveness, Statistics & Applied Research Unit at the Ministry of Community Safety and Correctional Services.

Twenty-six participants were recruited from the Sudbury District Jail inmate population participating in Stress/Anger Management groups. Lynda Moss was their group facilitator. Seventy two participants were recruited from classes at Laurentian University.

## Data Collection

This study compares the scores from the scales and profiles on MMPI-168 and the character strengths on the VIA-CS. The materials used included pencils, the VIA-CS and MMPI-168 tests, which were administered using scoring response sheets.

The MMPI-168 and VIA-CS questionnaires were administered using pen and paper. Participants read and endorsed a consent form agreeing to participate in the experiments, prior to administration of these tests. The following are example prompts from each of the questionnaires in which the participant was to answer a forced choice true or false on the MMPI-168. Answers on the VIA-CS were based on a five point Likert-scale describing the degree to which the prompt relates to their life experience:

MMPI-168:

- A person should try to understand his dreams and be guided by or take warning from them.
- I enjoy detective or mystery stories.
- Once in a while I think of things too bad to talk about.

VIA-CS:

- I always finish what I start.
- My friends tell me that I know how to keep things real.
- I have overcome an emotional problem by facing it head on.

Participants received comprehensive instructions written on the test and explained verbally. Where literacy was an issue, the researcher presented questions orally to the participants, and their responses were recorded by the experimenter on the questionnaire. A post-experimental questionnaire followed the testing session. The questions included demographic information regarding the participant as well as several items such as, "How did you feel about the questions on both tests?

## Data Management

Responses to the VIA-CS questionnaire provided by the participants were manually entered into the VIA-CS Institute website. This was required in order to obtain the individual ranking of character strengths. The participant rankings were then transcribed for analysis. The web entry was double checked and the transcription was done and rechecked.

To manage the MMPI-168 data, the Form-R answer sheet was used to tabulate raw scores for each of the validity and clinical scales of the MMPI. Form-R permits the scoring of all of the validity and clinical scales present in the full version of the MMPI using the shortened version of the test; the MMPI-168. These scale scores were then cross-referenced with the Raw Scale Score Conversion for the MMPI-168 from the Adults Conversion Table. This table converts the scores to represent the full length MMPI.

The final step in the processing of the data involved the conversion of some scores using a mathematical relationship with the validity score “K” (Defensiveness) score and graphing the data on the MMPI specific scoring sheet. The scores converted by a factor of K included Hs+0.5K, Pd+0.4K, Pt+1.0K, Sc+1.0K, and Ma+0.2K. The data was separated by male and female in order to complete the graphing forms as per the guidelines for scoring the MMPI-168. The completed graphs revealed an MMPI code – a numerical sequence describing specific psychopathologies if present.

Statistical Analysis

The MMPI-168 provides 3 validity scales and 10 scale scores of clinical interest. The VIA-CS describes the relative values people place on 24 character strengths. The goal is to examine any empirical relationships between the participant's scores on the MMPI-168 subscales and the VIA-CS scores. However, there are a variety of ways the two tests may relate; several approaches need to be reported to build a complete picture. All tests were conducted using STATA 13 (Angrist & Pischke, 2009). Principal component analyses were conducted using the para package.

The primary planned analysis was an examination of canonical correlations between the set of MMPI scores: Lie (L), Frequency (F), Defensiveness (K), Hypochondriasis, Depression,

Hysteria, Psychopathic Deviate, Paranoia, Psychasthenia, Schizophrenia , Hypomania, ; and the set of VIA-CS scores: Creativity, Curiosity, Judgment, Love of Learning, Perspective, Bravery, Perseverance, Honesty, Zest, Kindness, Social Intelligence, Teamwork, Fairness, Leadership, Forgiveness, Humility, Prudence, Self-regulation, Appreciation of Beauty and Excellence, Gratitude, Hope, Humor, and Spirituality were examined to establish the overall relationship between these tests. The MMPI scales for Masculinity/Femininity and Social Introversion were excluded due to the unclear evidence of the clinical relevance of these scales. Non-parametric ordination techniques (results not included) lead the same results. Follow-up tests were pearson's correlations to test the individual relationships between each relevant scale. No correction for familywise error was needed as explained below. Group differences were tested using MANOVA.

## Results

### Overview

The MMPI-168 provides ten clinical scale scores of interest. The VIA-CS describes the relative values people place on 24 character strengths. The goal is to examine any empirical relationships between study participants' scores on the MMPI subscales and the VIA-CS scores. However, there are a variety of ways the two tests may relate; several approaches need to be reported to build a complete picture.

### Multivariate Tests

Canonical correlation is the standard multivariate approach to investigate correlations between sets of variables. In this case, however, only a single canonical correlation was significant (cc = .74, Roy's Largest Root = 1.20, df1 = 24, df2 = 77, F = 3.84, p <.001); the multivariate test was not significant ($\lambda$ = .041, F = 1.12, p = .14). This result suggests that the

MMPI-168 and VIA-CS scores have almost nothing in common. To explain the significant single degree of freedom root in the context of the overall negative results (and given the adequate sample size) we considered the possibility that one of the tests may be grouped over a single factor – for example response bias (Macdonald, Bore & Munro, 2008). Using PCA, the sample showed at least three factors with Eigen values greater than 1 on the MMPI-168. However, in our sample, the VIA-CS scores generated a single factor solution. Attempts to fit multiple factors generated Heywood solutions. This suggests that multivariate methods are not ideal for answering the overall question – the proposed factors are not sufficiently separate. Note that it is not appropriate to use conventional factor analysis directly on the rankings. If the VIA-CS scale scores are normalized before the analysis even the single canonical relationship is not significant, which is consistent with the idea that the scale scores themselves may simply reflect a response bias – such as positivity or enthusiasm – that does not affect the rankings themselves.

The above general canonical correlation results have the potential to overstate the case that the two tests are not related. The MMPI is intended to characterize people based on thresholds set against a populate norm. Similarly, the VIA-CS is intended to characterize which five of 24 potential strengths have the highest values. The match between VIA-CS scores and MMPI profiles can be best evaluated for those VIA-CS strengths and MMPI profiles that are most frequently represented among the subjects, as indicated in Table 6. Tests of Significance of All Canonical Correlations for the 240 VIA-CS Question Responses and Table 7. Ranking of Top Five VIA-CS Strengths among Combined Populations.

Table 4. Ranking of Top Five VIA-CS Strengths among Combined Populations

| Most Frequently Valued Top 5 VIA-CS Strengths | |
|---|---|
| Honesty | .52 |
| Love | .43 |
| Humour | .42 |
| Kindness | .37 |
| Teamwork | .31 |

Table 5. Ranking of Top Five MMPI-168 Profile Characteristics among Combined Populations

| Most Frequently Endorsed MMPI-168 Profile Characteristics (excluding Masculinity/Femininity and Social Introversion) | |
|---|---|
| #4 Psychopathic Deviate | .68 |
| #6 Paranoia | .32 |
| #2 Depression | .31 |
| #8 Schizophrenia | .31 |

Accordingly, a second set of canonical correlations was used to evaluate the potential connections between the five most frequently valued VIA-CS strengths and the 4 most prevalent MMPI profile codes. The tests again showed to be unrelated, $tr_{pillai} = .186$, $df1 = 20$, $df2 = 368$, $F = .90$, $p = .59$. Post-hoc analysis indicated only a single correlation between the VIA-CS strengths and the MMPI profiles: Teamwork (VIA-CS) was negatively correlated with

Psychopathic Deviate, r = .26, p = .009. This is fewer than what would be expected by chance alone. This indicated the relationship between the MMPI-168 and the VIA-CS was small.

Univariate Continuous Tests – correlations

Therefore the pattern of univariate correlations was considered. There are eight MMPI by twenty-four VIA-CS scales to consider. Under simplistic assumptions (all scales being independent of one another,) the expected number of significant correlations due to chance alone would be nine; this is 192 * .05, the generally accepted alpha. In fact just three are observed (see Table 6 below).

Table 6. Correlations between MMPI-168 and VIA-CS subscale scores.

| MMPI-168 Subscale | Correlated VIA-CS Subscale scores |
|---|---|
| Hypochondriasis | None. |
| Depression | None. |
| Hysteria | Spirituality, r = -.22, p = .03 |
| Psychopathic Deviate | None. |
| Paranoia | Forgiveness, r = -.22, p = .02 |
| Psychasthenia | None. |
| Schizophrenia | Self-regulation, r = -.20, p = .05 |
| Hypomania | None. |

The correlations that are present do make some sense, however if one were to appropriately correct these alpha values for the number of comparisons done it is clear that the level of evidence is very low.

## Population Comparison Results

To ensure the inclusion of a diverse population, inmates and students were selected as subjects in the anticipation of providing a number of clinically relevant MMPI profiles. The MANOVA of the MMPI scales (excluding Masculinity/Femininity and Social Introversion) by population showed that MMPI scores were higher in the inmate population, $F = 9.38$, $df1 = 8$, $df2 = 93$, $p < .001$. Post-hoc, this difference was evident on every dimension except hypomania, $t = 1.06$, $p = .29$.

The same comparison was made for the raw scores on the 24 VIA-CS strengths. The two populations differed in their relative strengths, $F = 4.04$, $df = 24,77$, $p < .001$, however, the pattern of differences is complex with only three scales showing a significant difference post-hoc, namely Bravery, Prudence and Spirituality. Appendix A provides a detailed list of the average sample values for each population is presented.

# Discussion

## Findings, Limitations and Implications for Future Research

## MMPI-168 and VIA-CS Relationship Results

Canonical correlation can be used to investigate what is common between the two sets of variables (Tabachnick & Fidell, 2001, P.177). In this case, we took two well established

multidimensional personality tests, the MMPI and the VIA. By observing how the MMPI factors relate to the VIA factors, one could gain insight into what dimensions were common between the tests and how much variance was shared. It was found that chance alone could easily explain the canonical correlations found. However, the fact that the VIA scores did not clearly correspond to multiple separate factors suggested that multivariate tests may not be ideal in this case. That there is clearly no general connection between tests doesn't exclude the possibility of particular scales being connected.

There are ten (MMPI) by twenty-four (VIA-CS) scales to consider. Under simplistic assumptions the expected number of correlations due to chance alone would be twelve. In fact, there were just three, and the correlations were very small. However, although each of these correlations makes sense, post hoc, they are in fact very weak. In speculating about the relationship between the significant variables, a common sense approach should prevail. For example, the negative correlation between paranoia score and the forgiveness score is readily understood as, of course, a paranoid person is not a forgiving individual by nature. As well, within the prison population there is a high level of individuals who score higher on paranoia and within the subculture of a correctional facility is not wise to be too forgiving. However, when one considers that any reasonable adjustment for family wise error rates would take all three observed correlations below the level of chance, it would be wise not to interpret these findings unless they are supported in additional samples.

When a multivariate analysis of variance (MANOVA) to examine the MMPI scores by population was employed, it was not surprising to learn the inmates scored higher on all scales save except Hypomania. This is consistent with the idea that the inmates are experiencing more psychopathology ; and hopefully establishes that the sample was appropriately diverse for the

present study. However, the number of inmates is too small, and from too select a group to make any further interpretation.

MMPI-168 and VIA-CS: A Complimentary Approach

When reviewing the literature on the MMPI-168 and VIA-CS, there were no studies on how the VIA-CS and MMPI-168 are related. However, there were several books written on how to positively communicate and apply the results of the MMPI-168 in treatment situations (e.g. Levak, Siegel, Nichols, 2011). The descriptions of the MMPI scales are generally negative in their characterizing of maladaptive symptoms, which does not readily offer much opportunity to make something positive out of it.

In contrast, the VIA-CS provides an opportunity to engage with subjects in a positive way that is enjoyable to communicate. They are able to learn about and appreciate their strengths as opposed to focusing only on their maladaptive symptoms. This enables clients to feel better about themselves, develop self-esteem, and in turn, exhibit positive behaviours. Joseph and Linley (2004) succinctly summarize VIA-CS's benefit to practitioners as:

> The single most import contribution of positive psychology has been to provide a collective identity—a common voice and language for researchers and practitioners from all persuasions who share an interest in health as well as in sickness—in the fulfillment of potential as well as in the amelioration of pathology. (p. 4)

The application of both MMPI-168 and VIA-CS together provides a comprehensive perspective. These tools complement each other leading to more informed evaluations of clients, and greater hope for optimized personal development. While both assessment processes stand alone, they may be more powerful together.

Summary of Findings

This research investigates the relationship between the MMPI-168, which is used in clinical psychology to measure maladaptive behaviour and the VIA-CS which is used in positive psychology to measure character strengths. The study tested whether there is a correspondence between these two tests and to give insight as to how strong theoretical links may be between mental health, personality, and character strength values.

As indicated, the canonical correlations between the set of MMPI scores: Lie (L), Frequency (F), Defensiveness (K), Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Masculinity/Femininity, Paranoia, Psychasthenia, Schizophrenia , Hypomania, Social Introversion; and the set of VIA-CS scores: Creativity, Curiosity, Judgment, Love of Learning, Perspective, Bravery, Perseverance, Honesty, Zest, Kindness, Social Intelligence, Teamwork, Fairness, Leadership, Forgiveness, Humility, Prudence, Self-regulation, Appreciation of Beauty and Excellence, Gratitude, Hope, Humor, and Spirituality were examined. Overall, the two tests did not share more variance than would be expected by chance.(although $p = .089$). It should be noted this marginal effect includes the MMPI-168 scales for Masculinity/Femininity and Social Introversion. As these two scales are no longer considered to carry much clinical relevance, the same analysis was performed excluding those two scales, with the same results.

The above general canonical correlation results have the potential to overstate the case that the two tests are not related. The MMPI is intended to characterize people based on thresholds set against a populate norm. Similarly, the VIA-CS is intended to characterize which five of 24 potential strengths have the highest values. The match between VIA-CS scores and MMPI profiles can be best evaluated for those VIA-CS strengths and MMPI profiles that are most frequently represented among the subjects. Accordingly, a third canonical correlation was used to evaluate the potential connections between the five most frequently valued VIA-CS

strengths and the 4 most prevalent MMPI profile codes. The tests again showed to be unrelated. Post-hoc analysis indicated only a single correlation between the VIA-CS strengths and the MMPI profiles: Teamwork (VIA-CS) was negatively correlated with Psychopathic Deviate (MMPI_4). This is again fewer correlations then what would be expected by chance alone. This indicated the relationship between the MMPI-168 and the VIA-CS was small.

A MANOVA of the MMPI-168 scales (excluding Masculinity/Femininity and Social Introversion) and codes by population indicated the MMPI-168 scores were higher in the inmate population. Similarly, a comparison was made on the raw scores for the VIA-CS Character Strengths. The pattern of differences showed only three dimensions with a significant difference post-hoc even though the two populations differed in their relative strengths. The three dimensions were Bravery, Prudence and Spirituality.

Limitations

The validity of an assessment tool is always specific to a particular population and purpose. The sample used in this study does not reflect the full range of populations and myriad of purposes for which the MMPI and VIA-CS could be used. It is possible that other relationships may be found with different populations. It is quite likely that other inmate populations may differ.  This study did not focus on a wide range of ages or in depth analysis based on gender.

Statistically, the MMPI is intended and validated to capture people having extreme scores. The VIA-CS is intended to identify five of 24 strengths as being pertinent. The analyses conducted focused on the entire range of strengths seen in the underlying scales on each test. In principle, other techniques can be used to compare the binary presence and absences of MMPI thresholds to a non-parametric ranking of VIA-CS strengths. In practice this approach used the

most information possible – that of the entire sample and all the scales – but may not reflect all uses of these tests.

Although the septuagenarian MMPI is considered the gold standard of personality tests, it is not embraced by all as such. Over time the test has undergone numerous revisions and re-standardizations and begs the question of "Is it times to create a new test?" Tellegen and Ben-Porath (1993) have addressed this question in their research.

> The new version is, presumably, in some significant respects an improvement over the old one. At the same time, users need to know to what extent and under what circumstances they can, without loss of validity, interpret test scores obtained with the new versions as if it were still the old version. This question can be particularly pressing in the transitional period following the introduction of the new version, whenever the empirical data base of the old version is still far more substantial than that of the new one. (p. 489)

There was concern noted by Fraser (1986) regarding the 168 version of the MMPI as he pointed out it is a different test from the MMPI as it only involves only the first 168 items, and it is normed on a nonrandomized sample of private psychiatric clinic patients. However in examining the utility of brief assessment instrument, Fraser (1986) concluded:

> It would be of value to compare the utility of the MMPI-168 or other "short forms" to a validated structured interview procedure. There is no doubt that these types of assessment tools are needed in the field of rehabilitation psychology. (p. 57)

As previously discussed MMPI-168 reliability and validity is closely correlated that of the original MMPI (Vincent & Vincent, 1979). The MMPI-168 appears to be a good enough

proxy for the full MMPI that it is accepted in the legal system; therefore the present results most likely correspond to assessments done using the full MMPI and other tools whose validation rests upon it.

Careful consideration was given to the selection of the two study groups with particular attention given to the student research group to determine if this group was an adequate representation for the purposes of comparative analysis. Foot and Sanford (2004) refer back to McNemar (1946) to caution the overuse of students as research subjects in the science of human behavior for 60 plus years. Their concern being "student samples are inherently biased in age, experience, intellectual ability, ethnicity and social class (p. 256). Ten years later, Henrich, Heine, & Norenzayan (2010), coined the term WEIRD outliers to refer to the 96% of research subjects used in hundreds of studies in leading psychology journals published from 2003 to 2007, as westernized, educated people from industrial, rich democracies. The subjects for 67% of the American samples and 80% of the samples from other countries were undergraduates studying psychology. When compared with "rest of the species", WEIRD subjects are "frequent outliers… [for the] domains reviewed include visual perception, fairness, cooperation, spatial reasoning, categorization and inferential induction, moral reasoning, reasoning styles, self-concepts and related motivations, and the heritability of IQ" (Henrich, et al., 2010, p. 1). Henrich, et al., (2010) posited using such a narrow segment of society instead of randomized sampling, may have skewed our very understanding of behavioural science.

While many would find using undergraduate students a disadvantage as they are a segment of society not considered the norm (McNemar, 1946 cited in Foot & Sanford, 2004; Henrich, et al., 2010; Johansen, 2014), selecting a student research group was advantageous for the purposes of this study. As mentioned, the MMPI-168 is designed to detect deviations from normality, with

limited application in a normal population. Further, in order to look for relationships between the MMPI-168 and the VIA-CS, it is important both subject groups have consistencies within their respective groups. Therefore the two juxtaposed populations – students and incarcerated adults meet the needs of the study, as well as provide a unique cross section of society.

## Implications for Future Research

The finding that there are no strong relationships between these tests is an important outcome because it suggests that the VIA-CS is providing new information as an assessment tool, as opposed to simply re-stating the same findings as the MMPI. The amount of overlap between these two tests is low, which suggests that the VIA-CS is covering new ground and can complement existing assessment methods, in particular the MMPI. The characterization of strengths using VIA-CS does not actually reflect one's personality.

The results of this study contribute to a better understanding the relationship between the tests and their scores, and offers unique knowledge that can be applied to assisting individuals who require interventions. Studying the characteristics of the MMPI-168 and the VIA-CS contributes to increasing the knowledge base of clinical and positive psychology through an integrated approach aimed at expanding new treatment modalities to counter mental health problems through promoting positive strengths. Strength based clinical interventions have been shown to be promising (e.g. Rashid, 2010; Rashid 2015).

## Conclusions and Future Directions

The results of this research suggest that the VIA-CS is complementary to the MMPI.

For example, two persons scoring high on the hypochondriac scale could have different strength signatures. Despite the same MMPI profiles, different interventions could be chosen because of the different strengths obtained in the VIA. However, the MMPI is one of many assessment tools used in clinical practice. It would make sense to extend this study to a more comprehensive battery of tests and to a population with mental health issues in order to understand the extent to which this is true.

The findings indicate no strong relationships between these tests; arguably the evidence that they are correlated at all is less than one would expect by chance. This suggests that the VIA-CS is providing new information as an assessment tool, and not simply re-stating the same findings as the MMPI. Although the MMPI and VIA-CS both characterize people on the basis of a large number of questions, the characterization of strengths using VIA-CS does not actually reflect ones personality. The amount of overlap between these two tests is low, suggesting that the VIA-CS is covering new ground. Therefore, it can complement existing assessment methods such as the MMPI.

During the process of marking the tests, it was noted that some individuals had very negative endorsement of items styles on the VIA-CS, yet they produced wonderful character strengths. That it, they tended to disagree with most items, yet still clearly showed strengths. One was reminded that it was their perception of what they valued, and not a reflection of traits they necessarily possessed that was being measured. Studying endorsement styles may be an area of research which could yield a better understanding of the VIA-CS.

If positive psychology is to complement clinical psychology, which uses a lens of abnormality to view normality, then it makes sense to use the lens of normality to view abnormality. The VIA-CS classification does a good job of stating what the important strengths of character are and by implication gives a direction for those who wish to improve mental health. Peterson and Seligman (2004) argued that it is theoretically justified to use the VIA-CS character strengths to support assessment of psychological disorders; the results of this study indicate there is a clear cut empirical case as well.

## Potential New Applications

There is a place for VIA-CS and MMPI-168 use in the implementation of treatment care plans for clients with mental health and addiction issues. Whereas the MMPI findings indicate pathology and the need for improved coping, the positive traits identified in the VIA-CS provide potential pathways for enhanced feedback. Thus, the therapist has tools in hand to progress in a positive direction, and provides the client and therapist with 'hope'. When treatment plans are framed with substantiated hope for improvement, goals can be created by focusing attention on positive change.

With the trend in greater specialization in youth-focused treatment, the MMPI and the VIA-CS can be utilized to identify areas of psychopathology and the need for improved coping and resiliency, and to identify character strengths that can provide pathways to implement in therapy for improved outcomes. For example, therapists could employ the MMPI and VIA-CS in group therapy geared to youth with depressive mood disorders. The MMPI could identify the corresponding symptoms and rule out the need for pharmacological intervention. By sharing the results of the VIA-CS within group, all members gain from the exchange of identifying personal character strengths.

Another example involving youth is in the area of school truancy and likelihood of 'dropping out'. The MMPI can rule out psychoses and provide clear direction as to the resultant behavioural/personality issues. The VIA-CS can identify individuals' character strengths leading to treatment plans geared to reduction of truancy. For example, with the character strength, love of learning, the student can be true to his or her nature by identifying that he or she employs this strength by attending school.  Optimally, this application would reduce the number of school drop-outs.  School counsellors and educators can explore a range of strategies for applying strengths to enhance learning and retention.

These applications illustrate the potential for a two-pronged approach to assessment that brings together clinical and positive psychology assessment tools such as MMPI and VIA-CS. These tools complement each other, leading to a more informed evaluation of clients and greater hope for optimized personal development. While both assessment processes stand alone, they may be more powerful together. This research indicates a need for further studies combining MMPI and VIA-CS in assessment of individuals.

While many studies have demonstrated the effectiveness of positive psychology for building confidence, strengthening supportive relationships, and creating hope for a better life, further research is needed to study the effectiveness of the VIA-CS as a single assessment tool; as a complementary assessment combined with clinic psychology methods; and in combination with other strength-based assessments.  Beyond therapeutic applications, for example, at home and in workplace settings, positive psychology offers possibilities for improving personal growth, enhancing relationships, and promoting teambuilding, and employee engagement.  As Seligman (2002a) summarizes, "[a]s a side effect of studying positive human traits, science will learn how to better treat and prevent mental, as well as some physical, illnesses. As a main

effect, we will learn how to build the qualities that help individuals and communities not just endure and survive but also flourish." (p. 8).

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Appendix A

Table 7. VIA Strengths by Population

| Strength | Student Mean (n=72) | Inmate Mean (n = 30) | Difference |
|---|---|---|---|
| Appreciation | 3.34 (.66) | 3.33 (.68) | |
| Bravery | 3.46 (.69) | 3.75 (.44) | * Significant Difference |
| Love | 3.9 (.70) | 3.74 (.71) | |
| Prudence | 3.48 (.65) | 3.05 (.70) | * Significant Difference |
| Teamwork | 3.78 (.67) | 3.57 (.45) | |
| Creativity | 3.45 (.58) | 3.56 (.43) | |
| Curiosity | 3.72 (.67) | 3.70 (.48) | |
| Fairness | 3.74 (.67) | 3.74 (.37) | |
| Forgiveness | 3.35 (.68) | 3.44 (.65) | |
| Gratitude | 3.64 (.74) | 3.58 (.53) | |
| Honesty | 3.92 (.72) | 3.90 (.63) | |
| Hope | 3.74 (.76) | 3.55 (.49) | |
| Humor | 3.77 (.77) | 3.97 (.54) | |
| Perseverance | 3.66 (.74) | 3.62 (.61) | |
| Judgment | 3.63 (.66) | 3.50 (.44) | |
| Kindness | 3.77 (.77) | 3.91 (.47) | |
| Leadership | 3.72 (.76) | 3.77 (.39) | |
| Love of Learning | 3.32 (.64) | 3.22 (.59) | |

| | | | | |
|---|---|---|---|---|
| Humility | 3.28 (.53) | 3.34 (.51) | | |
| Self-regulation | 3.48 (.61) | 3.26 (.53) | | |
| Social Intelligence | 3.65 (.66) | 3.85 (.41) | | |
| Spirituality | 2.99 (.79) | 3.37 (.61) | * | Significant Difference |
| Zest | 3.61 (.67) | 3.68 (.58) | | |