Psychometrics Encompassing VIA-IS: A Comparative Cross Cultural Analytical and Referential Reading

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This study pertains to comprehend the differential nature and structural dynamics behind psychometric properties of the famous Values in Action-Inventory of Strengths (*VIA-IS*). The factorial and structural components of *VIA-IS* are studied in a wide range of settings and in limited attempts of its replication, the statistical values between the different versions of the inventory varies in different cultures across the globe, albeit not in a very significant manner. Taking instances from different cultures wherein the *VIA-IS* has been used and adapted for usage, this study will bring to light the major points of convergence and divergence in publicizing the psychometrics of a theory based self report measure. In a way, this study will provide a quick reference to the researchers who are interested in studying character strengths and virtues in an empirical manner and use *VIA-IS*. Also, this study will act as a connecting link between the various versions of the scale with special reference to its Indian adaptation.

Keywords: *VIA-IS, Psychometrics, Factor Structure, Cultures, Test adaptation*

Peterson and Seligman (2004) have developed a hierarchy of positive psychological character strengths after analyzing different religious, cultural and legal texts from around the world in an attempt to achieve a universal classification for character strengths. The hierarchy consists of 24 speciûc character strengths that are seen as the psychological ingredients that make up six "virtues". The classification includes 24 ubiquitously-recognized character strengths organized under the six broader virtues includes: (1) wisdom and knowledge (creativity, curiosity, judgment, love of learning and perspective); (2) courage (bravery, honesty, perseverance and zest); (3) humanity (kindness, love and social intelligence); (4) justice (fairness, leadership and teamwork); (5) temperance (forgiveness, modesty, prudence and self-regulation); and (6) transcendence (appreciation of beauty, gratitude, hope, humor and religiousness). This classification provides a starting point for a comparative psychology of character since these virtues are situated at a higher level of abstraction than character strengths, and are likened to constructs proposed by philosophers and religious figures over many centuries (Park, Peterson, & Seligman, 2004). Taken together, strengths of character appear to aid understanding of what contributes to fulûlling outcomes at personal, relational, and organizational levels which happens to be the primary goal of the positive psychology movement. With this, Positive psychology has reclaimed character and virtue as legitimate topics of investigation for social science (McCullough & Snyder, 2000).

Further, in order to measure and assess these 24 character strengths, Peterson and Seligman (2004) have also developed the *Virtues in Action* Scale (VIA). The VIA is a self-assessment measure of character strength requiring respondents to rate how likely they are to participate in certain behaviors that are

representative of the diûerent character strengths. The VIA-IS is a face-valid questionnaire that uses 5-point Likert-scale items to measure the degree to which respondents endorse items reflecting the 24 strengths of character in the character classification (1=very much unlike me, 5=very much like me). There are 10 items per strength (240 items in total) and certain strengths lead to their respective virtues. For example, the character strength of hope is measured with items that include ''I know that I will succeed with the goals I set for myself.'' The strength of gratitude is measured with such items as "At least once a day, I stop and count my blessings.'' Responses were averaged across the relevant items to provide scores for each of the 24 character strengths. The 24 strengths identified are believed to represent the underlying universe of strengths, although Peterson and Seligman (2004) explicitly claimed the classification to be ûnal or definitive; revisions may be suggested in light of subsequent empirical and theoretical developments.

As a matter of fact studies do exist which shows the relative prominence of different character strengths in different countries of the world including the so called tribal non-literate societies. The spearman's rho ($\tilde{n}$) values of the fifty four nations depict a simple instance of appearance and manifestation of character strengths in various world cultures (Park, Peterson, & Seligman, 2006). In addition to, these same virtues were recognized to be esteemed in non-literate societies like the Maasai (western Kenya) and the Inghuit (in northern Greenland) tribes (Biswas-Diener, 2006). However, when it comes to empirical validation of the structure of this classificatory system there are only selective studies in the recent years which are actually capable of providing a spotlight on its factor structure and internal dynamics (Macdonald, Bore & Munro, 2008; Peterson, Park, Pole, D'Andrea & Seligman, 2008).

This study is a deliberate attempt to highlight the psychometric and statistical properties of the *VIA-IS* including the proposed factor structure of the classification in different contexts as proposed by Peterson and Seligman (2004). We have taken instances of six different world cultures (viz. U.S.A, U.K, Japan, Australia, Croatia and India) wherein attempts have been made in these six years (2004-2010) to study *VIA* in a detailed manner and more importantly documented thereby providing empirical distinctiveness to the measure. This coalition effort will act as a ready referential point whereby future researchers could focus and would become better equipped to draw inferences regarding the differential structural dynamics of values in general and strengths in particular.

Method

The methodology adopted for achieving this objective is a kind of theoretical analysis whereby the literature concerning the study was identified and collected for inclusion in this study. But, since the studies which are present on the factor structure are very few therefore the exact methodology which is normally adopted during the process of meta-analysis was not possible. In simple terms, the statistical significance of the three studies available does not permit us to calculate estimates of necessary met-analytic indicators. Upon searching the papers related to the description of factor structure, only three published studies became evident till date apart from our factor structure solutions (Singh & Choubisa, 2009; 2010). The first study was done by the proponents of the *VIA* scale in a later replication study (Peterson, Park, Pole, D'Andrea & Seligman, 2008). Second one was in the Australian context whereby a one factor, four factor and five factor solutions of the 24 character strengths were put forwarded and documented (MacDonald, Bore & Munro, 2008) and the final reported study in this regard is the study

with Croatian version wherein a four factor solution of the classification system has been formulated recently (Brdar & Kashdan, 2010). The participants profile ranged from on an average of about 40 years of age (range from 18 to 65+ years) for the first study. Respondents on the remaining two studies were college students with age range 18-57 years; M=21.51; SD=6.57 and for Croatian sample with age range 18-28 years Mean=20.87; SD=1.78 respectively. The only point of difference was that the students filled up a paper pencil version of the VIA-IS except the study by Peterson et al., 2008 where the adult participant filled the online version of the scale. Apart from these studies there are available some other studies where descriptive statistics including preliminary statistics and the relative ranks of strengths as per their manifestation in different cultures have been reported (Park, Peterson & Seligman, 2006; Linley, Maltby, Wood, Joseph, Harrington, Peterson et al., 2007; Shimai, Otake, Park, Peterson & Seligman, 2006). In UK and US cultures the data collection was mainly through a website dedicated for the cause. Owing to certain limitations specified above, we have restricted ourselves to this theoretical analytic procedure wherein statistics over and above the statistical studies under consideration was not calculated. Nevertheless, a thorough qualitative analysis is done and presented in the next section of the paper. This is why this work will act a ready referential guide in the context of empirical validation of values in action inventory of strengths.

Results and Discussion

It's been six years since the classification of character strengths and virtues came into existence inasmuch as expected there are very few empirical investigations of the most widely used measure of character strengths.

Table-1: Comparative Descriptive Statistics for the 24 Character Strengths in World cultures (Means and Standard Deviations)

Scale Components (Strengths)	Mean ± SD Indian Sample*	Mean ± SD Swiss Sample#	Mean ± SD US Sample	Mean ± SD VIA-Hindi**	Mean ± SD U.K Sample***	Mean ± SD Japanese Sample****
Creativity	3.6±.57	3.5±.63	3.7±.63	3.3±.60	3.8±.70	10.8±7.5
Curiosity	3.6±.52	3.5±.61	3.7±.60	3.9±.48	4.0±.59	8.3±4.7
Love of Learning	3.2±.61	3.3±.66	3.6±.64	3.6±.60	3.9±.63	13.1±6.9
Open Mindedness	3.7±.53	3.5±.65	3.9±.51	3.7±.47	4.0±.81	14.8±6.1
Perspective	3.6±.53	3.4±.60	3.6±.54	3.4±.48	3.8±.55	9.5±5.6
Authenticity	3.7±.57	3.6±.67	3.6±.54	3.7±.43	4.0±.49	13.7±5.6
Bravery	3.6±.51	3.5±.63	3.4±.62	3.5±.51	3.6±.62	11.0±5.8
Persistence	3.6±.67	3.4±.73	3.1±.72	3.4±.57	3.6±.68	13.3±6.9
Zest	3.5±.57	3.3±.58	3.2±.70	3.6±.50	3.6±.71	9.3±4.7
Kindness	3.8±.49	3.6±.63	3.7±.56	3.9±.44	3.9±.53	17.7±5.3
Love	3.8±.56	3.5±.62	3.4±.70	3.8±.48	3.9±.62	17.0±6.3
Social-intelligence	3.5±.53	3.4±.60	3.5±.61	3.6±.44	3.8±.58	13.7±5.8
Fairness	3.8±.52	3.6±.67	3.5±.57	3.9±.45	4.0±.49	17.1±5.2
Leadership	3.7±.53	3.5±.67	3.4±.52	3.5±.49	3.7±.55	11.7±6.0
Teamwork	3.7±.55	3.5±.67	3.5±.57	3.6±.46	3.6±.57	11.4±7.3
Forgiveness	3.4±.55	3.4±.72	3.4±.73	3.5±.46	3.7±.62	9.7±6.4
Modesty	3.4±.61	3.4±.55	3.1±.63	3.4±.53	3.4±.64	10.9±6.7
Prudence	3.5±.53	3.4±.64	3.1±.61	3.4±.55	3.5±.57	11.2±6.6
Appreciation of Beauty	3.6±.64	3.4±.66	3.5±.72	3.6±.53	3.8±67	13.6±7.6
Gratitude	3.7±.57	3.5±.59	3.4±.65	3.7±.52	3.9±.63	19.2±4.8
Hope	3.8±.58	3.5±.63	3.4±.70	3.5±.52	3.6±.64	15.0±5.9
Humor	3.7±.62	3.5±.70	3.5±.61	3.7±.63	3.6±.56	3.8±.61	14.2±6.2
Religiousness			3.5±.66	2.8±.84	3.1±.85	3.6±.89	5.0±5.3

* VIA-IS (English Version) administered on Indian Sample in Indian Conditions.
** VIA-IS (Hindi Version) adapted following a standardized procedure and administered in Indian Conditions.
*** VIA-IS (Online English Version) administered on U.K participants is averaged for participants of 21-24 years age range.
**** VIA-IS (Japanese version) the mean and standard deviations has been taken ipsative (rank-ordered) to preserve the relative relationships amongst strengths. (Adopted from Otake et al., 2006).
# VIA-IS (English version) with Swiss sample is included herein as the descriptive statistics of Australian and Croatian studies were not reported except their factor structure.

Table-2: Comparative Factor Structure obtained in the only reported studies w.s.r.t. Indian version (Component wise with factor loadings)

	Factor/Components & Nomenclature provided to the Virtues in different settings				
Number of factors obtained in the documented Studies	**VIA-IS (English Version) Indian sample** Five Factor solution	**VIA-IS (Hindi Version) Indian Adaptation** One factor Solution	**VIA-IS (English version) Australian Sample**** Four factor solution	**VIA-IS (Croatian Version) Croatian Sample** Four Factor solution#	**VIA-IS (English Version) (Mixed Sample)** Five Factor Solution
	1. Civic Strengths: Authenticity (.63) Fairness (.84), Prudence (.56) Leadership (67), Teamwork (.75), Modesty (.56)	Creativity (.83) Curiosity (.85) Love of Learning (.79) Open Mindedness (.87) Perspective (.85) Authenticity (.85) Bravery (.84) Persistence (.86) Zest (.86) Kindness (.85) Love (.74) Social Intelligence (.84) Fairness (.86) Leadership (.85) Teamwork (.86) Forgiveness (.77) Modesty (.79) Prudence (.85) Self-regulation (.80) Appreciation of Beauty (80) Gratitude (.82) Hope (.82) Humor (.77) Religiousness (.78)	**1. Positivity:** Teamwork(.78), Capacity for Love (.74), Hope (.73), Humor (.63), Zest (.62) Leadership (.50)	**1. Vitality:** Zest (.82), Hope (.56), Curiosity (.55), Humor (.44)	**1. Cognitive** Beauty, Creativity Curiosity, Learning
	2. Self-assurance Strengths: Persistence (.80), Self-regulation (.71), Hope (.67), Religiousness (.58), Zest (.52).		**2. Intellect:** Creativity(-.78), Appreciation of Beauty (-.72), Curiosity (-.61), Love of Learning (-.60), Social Intelligence (-.58) Perspective (-.53), Bravery (-.44)	**2 Fortitude:** Perspective (.79), Judgment (.74), Originality (.65) Intelligence (.61) Bravery (.53), Learning (.35)	**2. Fortitude** Bravery, Honesty Judgment, Perseverance Perspective, Self-regulation
	3. Interpersonal Strengths: Humor (.71), Social-intelligence (.61) Bravery (.57), Kindness (.47)		**3. Conscientiousness:** Self-regulation (-.75), Persistence (-.73), Open-mindedness (-59), Authenticity (-58) , Prudence (-.53)	**3. Cautiousness** Prudence (.72) Self-regulation (.55) Perseverance (.48) Spirituality (.37) Honesty (.35)	**3. Temperance** Fairness, Forgiveness Modesty, Prudence
	4 Intellectual Strengths: Creativity (84), Curiosity (.47), Love of learning (.57), Open-mindedness (.70), Perspective (.46)		**4. Niceness:** Modesty (.75) Equity/Fairness (.64), Kindness/Generosity (.64), Forgiveness/Mercy (62), Spirituality/Religiousness (.60) Gratitude (.45)	**4. Interpersonal Strengths** Fairness (.79), Teamwork (.69), Kindness (.69), Forgiveness (.64), Love (.62) Modesty (.55) , Leadership (.54), Gratitude (.47)	**4. Transcendence** Gratitude ,Hope, Religiousness, Zest
	5. Theological Strengths: Gratitude (.66), Love (.63), Appreciation of Beauty (.60), Forgiveness (.55)				**5. Interpersonal Strengths** Humor , Kindness Leadership, Love, Teamwork Social intelligence
TVE *	45.49+8.46+6.98+4.67+4.41= 70.01%	68.38%	19+16+ 13+13= 61%	47.17+5.29+4.65+3.10=60 .21%	Not Available

* Total Variance Explained is equal to sum of all the individual factor components.

** For Australian sample a five factor and one factor solution are also reported.

\# This study has used promax rotation methodology unlike other studies wherein Varimax rotation was carried out to obtain final factor loadings.

As a matter of fact, to date there are only three published studies outside India where the empirical structure of character strengths measured by VIA scale is tested. Most astonishing part of the studies done in this regard is that none of the studies including the one replicated by the original proponents of the scale fits the classificatory criteria of six virtues and twenty four character strengths as provided earlier (Peterson & Seligman, 2004). This was because Peterson and Seligman (2004) conceived this classification from a ubiquitous theoretical point of view and not from an empirical/statistical perspective which came later. The number of factor solution in the three studies was either a one factor, five factor or the most interpretable four factor solution. This simply suggests that culture may play a substantial role in the preferential treatment, expression and usage of the character strengths. More to the point, the expression of character strengths in individualistic cultures (like UK, US etc.) and collectivist cultures (India, Japan etc.) may transcends the boundaries created as per Hofstede (1980) dimensions. There are indeed reports suggesting that collectivism and individualism may be multi-dimensional at the individual level (e.g., Hofstede, 2001; Singelis, 1994; Wessterhof, Duttmann-Kohli, & Katzko, 2000) and that "the two can coexist and are simply emphasized more or less in a

culture" (Triandis, 1994). Further, collectivism-individualism may manifest differently in different cultural contexts. Sinha and Tripathi (1994) reported that Indians are both collectivists and individualists at the same time and, according to one study (Sinha, Sinha, Verma, & Sinha, 2001), they combine both orientations in a complex way that the bipolarity of individualism and collectivism gets dissolved. Anyways, before coming to discuss the factorial validity and structure, let's have a look at the dominance and weakness of the omnipresent character strengths in distinct cultures.

The descriptive statistics (Means & SD's) of all the character strengths lies in the range of 2.8 to 4.0 with most values averaging above three (*see table-1*). The ubiquitous consistency of the middle response suggests presence of moderate standing of individuals on character strengths in different cultures. Some authors believe that this can be attributed to phenomenon which reflects national idiosyncrasies in how respondents treat the anchors of rating scales (Kulas, Stachowski & Haynes, 2008). The most commonly-endorsed strengths reported in the USA were kindness, fairness, honesty, gratitude, and judgment, and the lesser strengths included prudence, modesty, and self-regulation. Inspection of the raw scores in Table-1 shows that there were overall (cross-strength) differences in the scores from nation but still the US profile converged with rest of the nations (Park, Peterson, & Seligman, 2006). American and Japanese showed similar distributions of the 24 strengths measured, for instance, higher strengths included love, humor and kindness, and lesser strengths included prudence, self-regulation, and modesty (Shimai, Otake, Park, Peterson & Seligman, 2006). The positive ranks of kindness, love, humor, gratitude, open-mindedness, fairness, and hope were skewed toward higher ranks in Japanese sample. There were small

differences as Americans were more like to rank highly on strengths of humor, integrity, and perspective whereas Japanese ranked highly on strengths of gratitude, fairness, and hope. Sugihara and Katsurada (2000) suggested the possibility that the role of Confucianism in Japanese culture increases the importance of integrity, righteousness, and kindness. Although convergence of character strengths across two cultures is salient, there were several differences between American and Japanese results (Shimai et al., 2006). As far as the large UK sample is concerned, there appears to be considerable consistency between the signature strengths of open-mindedness, fairness, curiosity, and love of learning which tend to be highest in this sample. The biggest difference with special reference to Indian culture was found with respect to religiousness. When we talk about Indian sample the scores on religiousness are highest irrespective of relevant demographic differences. The reason that the strength of religiousness and other interpersonal strengths are high in Indian and Japanese cultures is may be because both these cultures are high in interdependence and interpersonal engagement (Kitayama, Markus & Kurokawa, 2000). Similar trends of concordance and difference exists in the expression and manifestation of different character strengths in different cultures. The generalization of current findings across nations may be limited due to the small sample sizes in some countries, the fact that respondents needed to read English, and the over-representation of well-educated respondents. Also, the gender differences were not carried out in details to avoid generalization and possible gender bias since the reported studies hasn't shown any significant differences.

Nonetheless, this theoretical analyses survive translation of the VIA-IS into other languages and paper-and-pencil

administration therefore the tabulated descriptive statistics may simply tell us that English-reading computer users around the world have similar profiles of character strengths. However, on the other hand it is not plausible to take these differences at face value and conclude that nations differ in their overall virtues which call for further research in this regard. Now, if we look at the factorial structure of the character strengths as replicated by Peterson et al (2008) a five factor solution with eigenvalues >1.0 was obtained using a principal components factor analysis with varimax rotation with a notion that some of the character strengths were intercorrelated (*see Table 2*). The names given to the factors were interpersonal strengths, fortitude, cognitive strengths, temperance strengths and transcendence. This replicated factor structure failed to confirm their previously propounded six virtues framework. Next two studies in the line were done in Australian (MacDonald et al., 2008) and in a more recent Croatian (Brdar & Kashdan, 2010) conditions whereby a most interpretable four factor solution becomes evident (*see table-2*). The broader virtues uncovered in Australian conditions are similar to Croatian results (*see table-2*) including a factor reflecting positive behavior toward other people (Interpersonal Strengths vs. their Niceness), a factor reflecting openness and bravery (Fortitude vs. their Intellect), a global factor of positive qualities encompassing zest, humor, and hope among others (Vitality vs. their Positivity), and a final factor reflecting self-control (Cautiousness vs. Conscientiousness). However, owing to the phenomenon of cross-loadings, some strength shuffled across the four factors under consideration. The noteworthy point of difference between the Australian and the Croatian sample lies in methodology for obtaining the factors. The Australian study on one hand has resorted to varimax (orthogonal) rotation whereas the Croatian

study has used promax (oblique) rotation methodology during their principal components analysis. There were two factor solutions in Indian context with one original English and other Hindi adapted version of the VIA scale. The first solution was a five factor solution where the factors have been named civic strengths (akin to strengths of restraint), self-assurance strengths (akin to emotional strengths), interpersonal strengths, intellectual strengths and theological strengths. The second factor solution obtained in Indian conditions was contradicting with the inclusion of a probable language bias i.e. when English version of the scale was used a five factor solution on the lines of Peterson et al., 2008 envisaging componential similarity became evident on the other hand when the translated version called *VIA-IS-Hindi* was used a one factor solution was the most interpretive solution. The evidence of one factor solution in Australian and Indian context can be attributed to a global influence (MacDonald et al, 2008). This single factor which was explaining all the character strengths in Indian adapted version has been named practical wisdom (formulated by Aristotle) that was supposed to act in a super ordinate manner in Indian context and was hypothesized to be playing a major role in governing the expression, usage and display of the strengths (Singh & Choubisa, 2009). The VIA-IS provides a reliable assessment of 24 character strengths across a consistent question and response format. The measure allows researchers to assess each of the 24 strengths in relation to each other, and for many of the strengths, provides the first specific self-report measure of the strength available. On this basis, the *VIA-IS-Hindi* now appears to be a valuable addition to the repertoire of researchers and practitioners who are interested in the eûective assessment of character strengths and their relationships with other positive psychological constructs in Indian milieu.

Recommendations and Suggestions

Like other researches, this reference work also suffers from certain deficits. One obvious one is that because of limited number of researches this study was rendered un-meta-analytic which in real sense can have provided a deeper meaning to this study. The second limitation is that the empirical structure of the *VIA* scale has been studied with sample of college students only which is not wholesome. This is because if we are focusing on the structure of strengths or their relation to each other, it might be more appropriate to address strengths in real-world contexts such as work and parenting which exists beyond college life. We suggest that it is paramount for other researchers to carry out replication studies to establish and corroborate the dependability of psychometric properties of such important scale and more importantly its adapted versions.

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