

**EXPLORING THE VALIDITY OF THE VIA-INVENTORY OF STRENGTHS
IN AN AFRICAN CONTEXT**

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**Mini-dissertation (article format) submitted in partial fulfilment of the
requirements for the degree Magister Scientiae in Clinical Psychology at the
North-West University (Potchefstroom campus)**

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SUMMARY

EXPLORING THE VALIDITY OF THE VIA-INVENTORY OF STRENGTHS IN AN AFRICAN CONTEXT

Keywords: Values in Action Inventory of Strengths; VIA-IS; African context; positive psychology; measurement; validity

The aim of this study was to explore the validity of the Values in Action Inventory of Strengths (VIA-IS) in an African context. This 240-item self-report questionnaire that measures 24 character strengths (Peterson & Seligman, 2004), was developed in a western individualistic context, and it cannot be assumed to be valid in African contexts without prior scientific evaluation. The current study, a first step in the evaluation of its validity in an African context, focussed on psychometric properties such as reliability, mean scores and variance, criterion-related validity, confirmatory and exploratory factor analyses, as well as translatability.

In a cross-sectional survey design an availability sample of African students (N=256) completed the original English version of the VIA-IS and other criterion-related measures of psychological well-being and health, during facilitated group sessions. The latter scales were the Affectometer 2 (Kammann & Flett, 1983), the Fortitude Questionnaire (Pretorius, 1998), the Sense of Coherence Scale (Antonovsky, 1987), the Satisfaction with Life Scale (Diener, et al. 1985), and the General Health Questionnaire (Goldberg & Hillier, 1979). Translation of the VIA-IS into Setswana and back-translation were conducted and evaluated by a research evaluation committee.

Results indicated that mean scores of the VIA-IS subscales are relatively aligned with those in a western context. Twenty of the twenty-four VIA-subcales showed satisfactory Cronbach alphas reliability indices above .70. The VIA-IS satisfies criterion-related validity as indicated by positive correlation with life satisfaction, positive affect, fortitude and sense of coherence, and negative correlation with negative affect and symptoms of ill-health. The VIA-IS was found to be translatable with preservation of original meaning, but in some instances technical terms had to be borrowed. Second order confirmatory and exploratory principal component factor analyses on the 24 strengths yielded three significant factors, and not six as

theoretically expected, in this African group. The three emic virtue clusters are 1) Wisdom, knowledge and courage, 2) Horizontal and vertical relatedness and 3) Integrity in a group context: temperance and justice. This clustering of virtues reflects a socio-centric, collectivistic African cultural value system. It is concluded that the VIA-IS may have merit in an African context, but is not completely valid in its original form with its hypothesised six value clusters. With modifications and adaptations a more valid version may be developed for an African context. Studies on randomly selected, larger African samples are recommended.

OPSOMMING

'N ONDERSOEK NA DIE GELDIGHEID VAN DIE *VIA-INVENTORY OF STRENGTHS* IN 'N AFRIKA KONTEKS

Sleutelwoorde: Values in Action Inventory of Strengths; VIA-IS; Afrika konteks; positiewe sielkunde, meting; geldigheid

Die doel van die studie was om die geldigheid van die *Values in Action Inventory of Strengths* (VIA-IS) te ondersoek binne 'n Afrika konteks. Die 240-item selfrapporteringsvraelys, wat 24 karaktersterktes meet (Peterson & Seligman, 2004), was ontwikkel in 'n Westerse, individualistiese konteks en kan nie in 'n Afrika konteks as geldig aanvaar word voordat dit wetenskaplike ge-evalueer is nie. Die huidige studie, 'n eerste stap in die evaluering van geldigheid binne 'n Afrika konteks, fokus op psigometriese eienskappe soos betroubaarheid, gemiddeldes en variansie, kriterium-verwante geldigheid, bevestigende en eksploratoriewe faktorontledings, sowel as vertaalbaarheid.

In 'n dwarsdeursnitopname-ontwerp het 'n beskikbaarheidsteekproef van Afrika studente (N=256) die oorspronklike Engelse weergawe van die VIA-IS en ander kriterium-verwante meetinstrumente van psigologiese welstand en gesondheid voltooi tydens gefasiliteerde groepsessies. Die laasgenoemde skale was die Affectometer 2 (Kammann & Flett, 1983), die Fortitude Questionnaire (Pretorius, 1998), die Sense of Coherence Scale (Antonovsky, 1987), die Satisfaction with Life Scale (Diener et al., 1985) en die General Health Questionnaire (Goldberg & Hillier, 1979). Vertaling van die VIA-IS na Setswana en die terugvertaling was gedoen en geëvalueer deur 'n navorsingsevaluasiekomitee.

Resultate het aangedui dat die gemiddelde tellings van die VIA-IS relatief in lyn is met tellings binne 'n Westerse konteks. Twintig van die vier-en-twintig VIA-subskale het aanvaarbare Cronbach alpha betroubaarheidsindekse bo .70 getoon. Die VIA-IS bevredig kriterium-verwante geldigheid soos aangedui deur positiewe korrelasies met lewenstevredenheid, positiewe affek, fortaliteit, kohesiesin en negatiewe korrelasies met negatiewe affek en simptome van ongesondheid. Die VIA-IS het geblyk goed vertaalbaar te wees met behoud van die oorspronklike betekenis, maar in enkele gevalle moes tegniese terme ontleen word. Tweede orde bevestigende en

eksploratiewe hoofkomponentfaktorontledings op die 24 sterktes in hierdie Afrika groep het drie betekenisvolle faktore gelewer en nie ses soos teoreties verwag is nie. Die drie emiese deugdebondels is 1) Wysheid, kennis en moed, 2) Horisontale en vertikale verhoudings en 3) Integriteit in 'n groep konteks: gematigdheid en geregtigheid. Hierdie bondeling van deugde reflekteer 'n sosio-sentriese, kollektivistiese Afrika kulturele waardestelsel. Die gevolgtrekking word gemaak dat die VIA-IS waarde mag hê binne 'n Afrika konteks, maar dat dit nie geheel en al geldig is in die oorspronklike vorm met die gehipoteseerde ses deugdebondels nie. Met modifikasies en aanpassings sou 'n meer geldige weergawe ontwikkel kan word vir gebruik in 'n Afrika konteks. Verdere navorsing op groter en ewekansig gekose groepe Afrika respondente word aanbeveel.

PREFACE

Article format

The article format, as described in the General Regulation A 13.7 of the North-West University, was chosen for purposes of this mini-dissertation that is part of the requirements for a professional masters degree.

Selected journal

The target journal for submission of the current manuscript is the *South African Journal of Psychology*.

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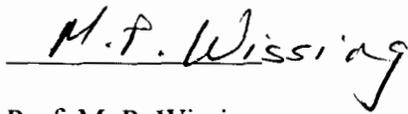
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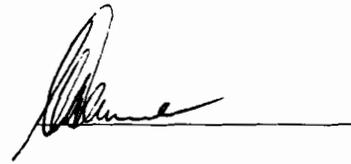
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We, the undersigned, hereby give consent that Itumeleng P. Khumalo may submit the manuscript *Exploring the validity of the VIA-Inventory of Strengths in an African context*, for purposes of a mini-dissertation as part of a masters degree.



Prof. M. P. Wissing

Date:



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SOUTH AFRICAN JOURNAL OF PSYCHOLOGY

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MANUSCRIPT

**EXPLORING THE VALIDITY OF THE VIA-INVENTORY OF
STRENGTHS IN AN AFRICAN CONTEXT**

Exploring the validity of the VIA-Inventory of Strengths in an African context

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Abstract

This study aimed to explore the validity of the Values in Action Inventory of Strengths (VIA-IS) in an African context with reference to reliability indices, means and variances, criterion-related validity, confirmatory and exploratory factor analyses, as well as translatability of the VIA-IS into Setswana. An availability sample of African students (N = 256) completed, after informed consent, the VIA-IS and other criterion-related measures of well-being in a cross-sectional survey format. Findings were that the VIA-IS was translatable into Setswana with preservation of original meaning, although technical terms had to be borrowed in some instances; mean scores of the VIA-IS subscales were relatively aligned with those in a western context; and 20 of the 24 VIA-subcales had Cronbach alpha reliability indices above .70. Criterion-related validity was found as indicated by positive correlations with life satisfaction, positive affect, fortitude and sense of coherence, and negative correlations with negative affect and symptoms of pathology. Second order confirmatory and exploratory principal factor analyses on the 24 strengths yielded three significant emic factors in this African group, namely 1) Wisdom, knowledge and courage, 2) Horizontal and vertical relatedness and 3) Integrity in a group context: temperance and justice. This factor pattern reflects an African, collective cultural value system. It is concluded that the VIA-IS may have merit in an African context, but is not valid in the original form with six hypothesised value clusters. With some modifications and adaptations a more valid version with an emic factor pattern, may be developed for use in an African context.

Keywords: Values in Action Inventory of Strengths; VIA-IS; African context; measurement; validation.

Exploring the validity of the VIA-Inventory of Strengths in an African context

The current study explores the validity of the Values in Action Inventory of Strengths (VIA-IS), in a more collectivistic African cultural context. The VIA-IS was developed in a western context by Peterson, Seligman and others as part of the expansion of positive psychology (Peterson & Seligman, 2004; Seligman & Csikzentmihalyi, 2000). Seligman and others in the USA view positive psychology as a movement in psychology, while it became custom in South Africa to refer to research and practice in this area as “psychofortology” (i.e. the science of psychological strengths), and to view it as a sub-discipline in psychology (Wissing & van Eeden, 1997; 2002).

Positive psychology/psychofortology is concerned with valued subjective experiences, positive individual traits, civic virtues, and various other facets of psychological health and well-being (cf. Aspinwall & Staudinger, 2003; Diener, 2000; Fredrickson, 2001; Keyes & Haidt, 2003; Linley & Joseph, 2004; Lopez & Snyder, 2003; Ryan & Deci, 2000; Ryff & Singer, 1998; Seligman and Csikzentmihalyi, 2000; Snyder & Lopez 2002). The current study links with research on positive individual traits, and specifically, psychological strengths as part of a values in action model (Peterson & Seligman, 2004), and the measurement thereof.

Positive psychology’s VIA-classification describes character strengths as positive traits reflected in thoughts, feelings and behaviour (Park, Peterson, & Seligman, 2004). A similar definition of character strengths was given a decade ago by Yearley (1990: 13) namely, “a disposition to act, desire, and feel that involves the exercise of judgement and leads to a recognisable human excellence or instance of human flourishing”. Strengths embody virtues, which are core values identified by philosophers and religious thinkers (Peterson and Park, 2003). Seligman (2003)

contends that increased use of strengths and virtues in the major realms of people's lives should enhance the experience of quality of life.

Culture and context are powerful influences in human experience and manifestations of psychological well-being (Diener & Suh, 2000; Floris & Obasi, 2003; Greenfield, Keller, Fuligni & Mynard, 2003; Ryff & Singer, 1998). Representations of self are shaped and reinforced by culture (Ebigbo, Oluka, Ezenwa, Obidigo & Okwaraji, 1996; Ikuenobe, 1998; Suh, Diener, Oishi & Triandis, 1998). Most of the research on psychological well-being, strengths and virtues has so far taken place within the USA and western European cultural contexts with research focusing predominantly on samples from white population (Lopez, Prosser, Edwards, Mayor-Moe, Neeufeld & Rasmussen, 2002). Human experience of psychological well-being as seen from an African perspective still needs to be explored (Ryff & Singer, 1998). Although the virtues and strengths described in the VIA-classification model are supposed to be universally applicable, there is still a need to determine whether these virtues and strengths are also commonly recognised in an African collectivist cultural tradition (C. Peterson, letter, September 19, 2003), and whether the VIA-IS would be a valid measuring instrument in this context.

The VIA-IS measures 24 strengths, categorised under 6 virtues (Peterson & Seligman, 2004). Virtue clusters and their embodying strengths are: (i) *Wisdom and knowledge*: Curiosity, Love of learning, Open mindedness, Creativity, Perspective; (ii) *Courage*: Valour/Bravery, Persistence, Integrity, Zest/Vitality; (iii) *Humanity and love*: Love, Kindness, Social intelligence; (iv) *Justice*: Citizenship, Fairness, Leadership; (v) *Temperance*: Self-regulation, Prudence, Forgiveness and mercy, Modesty and humility; (vi) *Transcendence*: Appreciation of beauty and excellence, Gratitude, Hope, Humour and playfulness, Spirituality. Criteria applied in the

selection of strengths, were such that traits should be ubiquitous, fulfilling, morally valued, not diminishing others, can be measured, should have obvious antonyms, may be strikingly found in some individuals and not in others, some children or youth may display these strengths precociously, and some social institutions deliberately attempt to cultivate these traits in people (Peterson & Seligman, 2004).

Peterson and Seligman (2004) empirically found that character strengths are associated with other indices of well-being. Park, Peterson and Seligman (2004) found that Hope, Zest, Gratitude, Love, and Curiosity strongly correlate with life satisfaction (SWLS). In their 80 % American sample (N = 5 299), Modesty and humility, Appreciation of beauty, Creativity, Judgement, and Love of learning had relatively lower correlations with life satisfaction. The authors concluded that VIA-strengths are on the whole associated with life-satisfaction. After the New York September 11th attack in 2001, it was found that seven strengths showed an increase among Americans, namely Gratitude, Hope, Kindness, Leadership, Spirituality, Love, and Citizenship/teamwork (Peterson & Seligman, 2003). It thus seems that character strengths, as conceptualised and measured by the VIA-IS, are related to other important facets of psychological well-being and quality of life.

The aim of the current study was to explore the validity of the VIA-IS in an African context. In order to do this, it was necessary to determine whether the VIA-IS could be translated into an African language in a culture-sensitive way (cf. Brislin 1970, Van de Vijver & Leung, 1997), and what its psychometric properties would be if completed by an African group of respondents. Invariance in the following psychometric properties may reflect cross-cultural applicability according to Paunonen and Ashton (1998): (i) scale means and variances, (ii) reliabilities, (iii)

factor structure, and (iv) pattern of correlations with other variables (criterion-related validity; convergent and discriminant validity).

METHOD

Design

This study consisted of two components: 1) a cross-sectional survey to determine criterion-related and construct validity; 2) a translation and back-translation of the VIA-IS to determine translatability into Setswana.

Participants

African students at the three campuses of the North-West University (n = 25 from Potchefstroom campus; n=168 from Mafikeng campus; n=63 from Vaal-Triangle campus) formed an availability sample (N = 256). All participants were undergraduate psychology students, accessed through their lecturers. Participants were 154 females and 102 males, with a mean age of 22 years and 6 months. Informed consent was obtained from participants. Confidentiality was assured, and feedback would be available to individuals on request (participants noted own participant numbers on questionnaire booklet for future reference if so required). Participants completed all questionnaires in English, which is their second language, and their language of tuition at the university.

Data collection

Quantitative survey: Measuring instruments

VIA Inventory of strengths (VIA-IS) (Peterson & Seligman, 2004). The VIA-IS is a 240-item self-report questionnaire that uses a 5-point Likert scale. It provides an indication of character traits constituting the VIA-classification (Peterson & Seligman, 2004). It has 24 sub-scales (strengths), each with 10 items. Respondents report the degree to which statements in the scale apply to them. Scores are calculated

by averaging responses for each sub-scale, with higher numbers reflecting more of the strength (Peterson & Seligman, 2004).

Self-report surveys are a reasonable way of assessing components of character (Peterson & Seligman, 2003). In addition, the self-report nature of the VIA-IS does not pose a social desirability threat to reliability since strengths *are* socially desirable (Steen, Kachorek and Peterson, 2003).

In this study, a hard-copy version of the English VIA-IS, similar to the internet version, was employed. Park, Peterson, and Seligman (2004) report satisfactory internal consistency, with all sub-scales having Cronbach alphas above .70. In a previous study by Peterson and Seligman (2003) reliability indices above .75 were found. Reliabilities for this scale are reported in Table 1.

Affectometer (AFM) (Kammann & Flett, 1983). The AFM is a 20-item self-report scale indicating quality of life as experienced on an affective level by measuring general feelings of happiness or sense of well-being (Kammann & Flett, 1983). The scale is divided into two subscales, namely positive affect (PA) and negative affect (NA). In the original study Kammann and Flett (1983) reported a reliability index of .95 for the Affectometer. In a Setswana-speaking sample, Moroeng (2001) found Cronbach alphas of .68 for PA and .77 for NA. In the present study, indices of .69 for PA, and .73 for NA were found.

The Fortitude Questionnaire (FORQ) (Pretorius, 1998) The FORQ is a 20-item questionnaire measuring fortitude. Pretorius (1998) describes fortitude as the strength to manage stress and stay well. Fortitude is derived from appraisal of the self, the family, and support from others. An individual with positive appraisal of these aspects is said to be able to cope successfully with stress and would experience low levels of depression (Pretorius, 1998). In the initial study, among South African students,

Pretorius (1998) reported a reliability index of .85 for the total scale. In the present study Cronbach alpha of .86 was found.

Sense of Coherence Scale (SOC-29) (Antonovsky, 1987, 1993). The SOC-29 measures sense of coherence, which expresses an individual's global orientation to life (Antonovsky, 1987). The SOC was designed to be a culture-free instrument, and sense of coherence a universally valid construct (Antonovsky, 1987, 1993). Bowman (1996) found that people from various cultures attain similar levels of a sense of coherence. From an overview of earlier studies with the SOC-29 Antonovsky (1993) reported Cronbach alphas of .82 to .95. In a study among a Setswana speaking group, Thekiso (1999) reported a Cronbach alpha of .70. A Cronbach alpha of .78 was found in the current study.

Satisfaction With Life Scale (SWLS) (Diener, Emmons, Larson & Griffen, 1985).

The SWLS is a 5-item scale to measure the cognitive judgemental component of subjective well-being, which is a global evaluation of one's own life satisfaction (Diener, *et al.*, 1985). This is done with the individual's constructed standard of well-being, and not an externally imposed one (Pavot, Diener, Colvin & Sandvik, 1991). In the original study, a Cronbach alpha of .87 was found (Diener, *et al.*, 1985). In a Setswana-speaking group Thekiso (1999) found an alpha of .67. A reliability index of .61 was found for the SWLS in this study.

General Health Questionnaire (GHQ-28) (Goldberg & Hillier, 1979). The 28-item GHQ consists of four subscales measuring somatic symptoms, anxiety and insomnia, social dysfunction and depression (Goldberg & Hillier, 1979; Werneke, Goldberg, Yalcin, & Ustun, 2000). It is generally used as a screening instrument in clinical settings, focusing on one's inability to carry out normal healthy functions (Goldberg & Hillier, 1979; Goldberg & Williams, 1988). In a Setswana-speaking sample

Thekiso (1999) reported a Cronbach alpha of .91 for the total scale. In this study a reliability index of .86 was obtained.

Translation and back-translation

Two bilingual translators translated the VIA-IS (Peterson & Seligman, 2001) into Setswana, thereafter two other translators translated the Setswana questionnaire back into English. The authors formed a research evaluation committee (cf. Van de Vijver & Leung, 1997) for comparison of the original English questionnaire with the back-translated English one (cf. Brislin, 1970; Sinaiko & Brislin, 1973).

Procedure

Undergraduate psychology students from the three campuses of the North-West University were recruited through their lecturers. Completion of scales took place in facilitated group settings during class periods, with some students completing the rest at home. Lecturers and field-workers facilitated these sessions. The English version of the VIA-IS-240 was translated into Setswana, back-translated, and then evaluated by a research committee. The Ethics Committee of the North-West University approved the current study and granted the Ethics committee approval number 04K10.

Analysis of the data

Statistical analysis. Descriptive statistics and Cronbach alpha reliability indices were computed for VIA-strength-scales. Correlations between the VIA-strengths and well-being measures were determined in order to explore criterion-related validity. Second order confirmatory and exploratory factor analyses were conducted to determine construct validity. First order factor analyses were not possible because of the large number of the VIA-IS items (240), and the relatively small sample size (N=256).

Translations. Back-translated English items were compared with the original English items to determine the level of meaning retained or lost, cultural applicability, and therewith to determine the translatability of the VIA-IS into Setswana.

RESULTS

Descriptive statistics and reliability indices of the VIA-IS

Descriptive statistics and Cronbach alpha reliability indices for the VIA-strengths are reported in Table 1. Reliabilities range between .56 and .83. Most strengths (79%) score above .70, with the exception of Perspective, Integrity, Love, Self-regulation and Modesty and humility, which are lower. Higher reliability indices are found for Persistence and Leadership.

Strengths yielding highest means are Hope, Spirituality, Gratitude, Love, Kindness, Fairness and Persistence. Strengths with lower means are Love of learning, Bravery, Self-regulation, Appreciation of beauty, and Forgiveness/mercy. The largest deviations from zero, based on the kurtosis, were found with Perspective which was negatively skewed, as well as Integrity, Love, Fairness and Hope which were positively skewed.

[Table 1]

Validity of the VIA-IS

Criterion-related validity

Criterion-related validity is indicated by correlations between VIA-strengths and other well-being indices (see Table 2).

[Table 2]

Strengths were found to be associated with well-being indices such as SWLS, SOC, FORQ and AFM-PA, and to be negatively associated with indices of pathology such

as GHQ and AFM-NA. However, Kindness and Leadership correlate positively with GHQ, and Appreciation of beauty positively with negative affect (NA).

Confirmatory factor analyses within the 24 VIA-sub-scales

Confirmatory principal components factor analyses, with varimax rotation were performed on the 10 VIA-IS items within each of the 24 sub-scales. The number of factors obtained, their eigenvalues and percentage variance explained per strength are reported in Table 3. More than one factor emerged within each sub-scale. This indicates a lack of complete homogeneity within sub-scales as determined in this group of participants.

[Table 3]

Second order confirmatory factor analyses

Six separate second order confirmatory principal components factor analyses on the sub-scale scores for strengths within the six virtue clusters confirmed that strengths loaded on the particular virtue clusters. For each virtue the specified strengths loaded significantly on a single factor each, as shown by high factor loadings, eigenvalues, and percentage variance explained.

Results from a confirmatory principal components factor analysis, with varimax rotation, on the 24 strengths with pre-specification for 6 factors are presented in Table 4. Only 3 major factors emerged with eigenvalues above 1, with the other 3 being minor factors. Together the six factors account for 75% of the variance. The main finding here is that no “pure” virtue cluster as presented in the original VIA theoretical model emerged.

[Table 4]

Second order exploratory factor analysis

Findings from an exploratory principal components factor analysis with varimax rotation on the 24 VIA-strengths without pre-specification are reported in Table 5. Three factors, and not six, were found amongst this African group. All strengths from the wisdom virtue, two strengths (Bravery and Persistence) from courage, and Social intelligence from humanity loaded on the first and main factor. Humanity and transcendence virtues, and Vitality from the courage virtue formed the second factor. The third factor comprises of strengths from the justice and temperance virtues, as well as Integrity from the courage virtue. Some strengths loaded significantly ($>.3$) on more than one factor, and strengths from the courage virtue loaded across all three factors.

[Table 5]

Translation and back-translation of the VIA-IS

The VIA-IS translation and back-translation yielded minimal minor meaning errors that can be categorised into two clusters. Firstly, the (post-) modern/technical words were “borrowed” from English in Setswana, and were not translatable. They include “library”, “internet”, “museums”, and “non-fiction”. Secondly, some words and phrases had meaning specificity in an Euro-American socio-cultural context, and were difficult to translate into Setswana, for example, “curiosity”, “thinking critically”, “phoney”, “making someone tick”, “doing small favours”, “getting chills”, “original”, “taking risks to establish a relationship”, and “knowing how to keep things real”.

Such words and phrases were rephrased, and rendered more culture-specific in the Setswana translation. Regarding content validity, the evaluation committee deemed some of the items from the Self-regulation sub-scale as culturally less applicable.

Items on diet-related behaviour were not an applicable means for evaluation of self-

regulation. Despite item rephrasing and cultural adaptation, items retained their original meaning when back-translated into English.

DISCUSSION

The main finding of this study is that the VIA-IS of Peterson and Seligman (2004) is not completely valid in an African context, taking into account descriptive statistics and reliabilities, criterion-related validity, confirmatory and exploratory factor analyses, and translations. It is, however, not without merit, and with some modifications and adaptations a more valid version with an emic factor pattern, may be developed for use in an African context.

Most VIA-IS sub-scales (20 of the 24 strengths) demonstrated satisfactory internal consistency, with Cronbach alpha reliabilities above .70. Perspective, Integrity, Love, Self-regulation, and Modesty and humility scored below .70. Peterson and Seligman (2003) reported Cronbach alphas of .75 and above for all sub-scales. In another study, Park, Peterson, and Seligman (2004) report alphas above .70 for all strengths. The current findings are thus in line with others for nineteen strengths but not for five.

No significant difference in magnitude was found between means of the strengths. Peterson and Seligman (2003) reported mean scores comparable to the current study's findings. In the current study the highest mean scores were found for Curiosity, Creativity (Wisdom and knowledge), Gratitude, Hope and Spirituality (Transcendence). Curiosity, Kindness, Fairness, Love, Gratitude, and Judgement scored consistently high in a longitudinal study by Peterson and Seligman (2003). In another American study by Peterson and Seligman (2004), Curiosity, Gratitude, Hope, Love, and Zest/enthusiasm obtained the highest scores. As far as mean scores are concerned, the current findings are relatively aligned with those in a western context.

Most of the sub-scales of the VIA-IS correlated positively with measures of well-being, and negatively with indices of psychopathology. Positive correlations between strengths and life satisfaction, positive affect and other indices of psychological well-being, were in line with the findings of Peterson and Seligman (2004), and Park, Peterson and Seligman (2004). All strengths except Forgiveness and mercy, Modesty and humility, and Appreciation of beauty, showed significant positive correlations with positive affect (PA). This is reminiscent of Fredrickson's (2001) broaden and build model of positive affect in which positive affect is hypothesised as a major impetus for development of other strengths.

The correlation between sense of coherence and character strengths indicates that strengths are associated with the tendency to perceive life as being understandable, meaningful and manageable. Fortitude positively correlated with all strengths. This is in line with what could have been expected in an African context where relationship values are very important (Ebigbo, Oluka, Ezenwa, Obidigo and Okwaraji, 1996; Ikuenobe, 1998; Mbiti, 1990; Ryff & Singer, 1998). Strengths are inversely, but only moderately, related to indices of negative well-being (general state of illness and negative affect). Put together the pattern of correlations indicates a good degree of criterion-related validity (cf. Panounen & Ashton, 1998).

The overall quality of the translated and back-translated VIA-IS was found to be acceptable. The notion that socially relevant and significant aspects become encoded into a language (John, Angleitner & Ostendorf, 1988) suggests a degree of culture relevance of the hypothesised character strengths among Setswana-speaking people.

As far as factor structure is concerned, a mixed picture was found. No homogeneity was found within the VIA-sub-scales, with each consisting of more than one factor. Confirmatory principal factor analysis with varimax rotation on the 24 strengths with

pre-specification for six factors yielded only 3 significant factors, with the rest being minor factors. Thus, the theoretically expected 6 virtue clusters were not found in responses from this African group.

With an exploratory principal components factor analysis with varimax rotation (thus without pre-specification of number of factors to retain) an emic factor pattern emerged consisting of 3 factors. Noteworthy is that the strengths from the virtue of courage are spread over the three factors. This may indicate the importance of courage in the manifestation and/or experience of character strengths in a Setswana group. The emic factor pattern can be described as follows:

Factor 1: Wisdom, knowledge and courage. This factor consists of wisdom and knowledge strengths, strengths of courage: Bravery and Persistence, and Social intelligence from humanity. Bravery and Persistence indicate the ability to stand up for what one knows and believes is right and persevere to complete tasks in spite of obstacles. In this cluster, these attributes are associated with the cognitive strengths that entail the acquisition and use of knowledge. Knowledge acquired finds more use in social contexts. Social intelligence refers to the ability to fit in social situations, and Perspective includes providing wise counsel to others. Social intelligence allows for temperance, social skills, self-awareness, and the application of creative, analytical, and practical intelligence with independence and self-regulation (Moon, 2003). Other strengths that allow for knowledge acquisition are love of learning, creativity, curiosity and open-mindedness. Through these, one is able to be open to experience, think critically and seek to master new skills and be innovative. The activation and informed intention to learn, explore, be creative, and exercise one's capability manifests in social-contextual supportive conditions (Ryan & Deci, 2000).

Factor 2: Horizontal and vertical relatedness. This factor comprises of strengths of humanity (horizontal) and transcendence (vertical) virtues, and Vitality from Courage. The expression of contentment from a complete sense of relatedness with others and the larger universe is encompassed in this cluster of strengths. Love and kindness allow for close relationships of sharing, caring and nurturing. Transcendence strengths allow one connection with the larger universe. Hope (optimism) connects people happily with the future, and gratitude with the past. Positive affect is channelled out through humour and playfulness, and cognitively complimented by appreciation of beauty and excellence. Vitality add an element of vigour such that life would be approached with excitement and energy.

In an African context, spiritual well-being, the spiritual realm and religious concepts are associated with social concepts of mutual consultation, co-operation, reconciliation and family togetherness (Choabi, 2000; Renner, Peltzer, Phawasa, 2003; Ryff & Singer, 1998). Among Africans, humanity is not, as found by Peterson and Seligman (2004) among Americans, limited to one-to-one relationships, but a collectivistic concept of horizontal and vertical relatedness.

Factor 3: Integrity in a group context: Temperance and Justice. This factor is made up of Integrity from Courage, and all strengths of Justice and Temperance virtues. The factor represents rectitude with which an individual presents oneself in a group context. Citizenship, Self-regulation, Prudence, Fairness, Modesty, Leadership, Forgiveness and Integrity are strengths of this cluster. Attributes of presenting oneself in a genuine way and loyal to the group, being careful and having control over one's feelings and behaviour, treating all people the same and encouraging and maintaining good relations all contribute to integrity in a group context. This cluster also includes the capacity to be humble, not seeking the spotlight and being forgiving.

This factor composition is in line with commitment to conform to social demands, justice, temperance and integrity that are typical of an African culture and tradition (cf. Ryff & Singer, 1998). A decent citizen is characterised by non-violence, good behaviour, hard work, honour, and respect (Campbell, 1995; Renner, Peltzer & Phaswana, 2003).

Taking the criteria stipulated by Panounen and Ashton (1998) into account, it can be concluded that the VIA-IS has merit, but is not completely valid in its original form in an African context as determined with the current group of participants. Future research should explore the nature of character strengths in an African context with a qualitative approach in order to identify possible other culture-specific virtues and strengths. Further quantitative studies should also be conducted on larger more representative samples and age groups. Such information may then be utilized in adapting the VIA-IS culture sensitively for use in an African context.

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Table 1 – Descriptive statistics and reliability indices of the VIA-strengths as subscales of the VIA-IS for the total sample (N = 256)

Strength	M	SD	Range		Kurtosis	Chronbach alpha
			Min	Max		
Curiosity	38.33	5.05	23.75	50.00	-0.06	0.72
Love of learning	36.47	5.73	21.11	50.00	-0.31	0.77
Open-mindedness	39.70	4.95	25.00	50.00	-0.14	0.75
Creativity	39.12	5.24	23.00	50.00	-0.27	0.78
Perspective	39.43	4.69	27.00	50.00	-0.54	0.68
Bravery	37.71	5.51	21.00	50.00	-0.20	0.74
Persistence	40.87	5.17	25.00	50.00	-0.37	0.80
Integrity	39.79	5.16	20.00	50.00	0.60	0.68
Zest/Vitality	38.68	5.15	20.00	50.00	0.30	0.76
Love	41.85	4.87	18.75	50.00	1.64	0.68
Kindness	40.37	5.19	22.22	50.00	-0.13	0.73
Social intelligence	38.46	5.13	18.75	50.00	0.15	0.71
Citizenship	39.79	5.56	20.00	50.00	0.23	0.77
Fairness	41.05	4.87	17.50	50.00	2.00	0.73
Leadership	40.37	5.57	21.00	50.00	0.16	0.83
Self-regulation	36.54	4.86	22.50	50.00	0.08	0.56
Prudence	38.67	5.65	20.00	50.00	-0.05	0.74
Forgiveness and mercy	37.97	5.48	22.50	50.00	-0.22	0.73
Modesty and humility	38.38	4.99	20.00	50.00	0.51	0.60
Appreciation of beauty	37.94	6.09	17.14	50.00	-0.14	0.76
Gratitude	41.66	4.81	26.67	50.00	-0.12	0.77
Hope	43.75	4.58	17.78	50.00	3.19	0.75
Humour and playfulness	39.35	5.39	23.00	50.00	-0.13	0.75
Spirituality	42.00	5.24	25.00	50.00	0.17	0.76

Table 2 – Criterion-related validity: Correlations between VIA-strengths (VIA-IS dimensions) and the measures of well-being for the total sample (n = 256)

Strength	Well-being					
	AFM-PA	AFM-NA	FORQ	SOC	SWLS	GHQ
Curiosity	0.37	-0.13	0.36	0.24	0.35	-0.09
Love of learning	0.36	0.00	0.34	0.16	0.28	-0.11
Open- mindedness	0.44	-0.09	0.40	0.16	0.25	-0.04
Creativity	0.41	-0.06	0.40	0.18	0.30	-0.01
Perspective	0.44	-0.17	0.31	0.22	0.28	-0.13
Bravery	0.38	-0.12	0.28	0.17	0.20	-0.07
Persistence	0.39	-0.11	0.41	0.21	0.16	-0.02
Integrity	0.39	-0.17	0.33	0.22	0.25	-0.07
Zest/Vitality	0.41	-0.10	0.33	0.26	0.27	-0.09
Love	0.30	-0.08	0.38	0.23	0.26	-0.07
Kindness	0.33	-0.07	0.23	0.13	0.17	0.02
Social- intelligence	0.42	-0.07	0.32	0.16	0.20	0.00
Citizenship	0.36	-0.09	0.32	0.23	0.12	-0.11
Fairness	0.32	-0.13	0.29	0.19	0.15	-0.09
Leadership	0.35	-0.13	0.32	0.18	0.09	0.01
Self- regulation	0.36	-0.03	0.32	0.09	0.17	-0.04
Prudence	0.38	-0.06	0.35	0.20	0.16	-0.08
Forgiveness and mercy	0.29	-0.11	0.21	0.16	0.13	-0.11
Modesty and humility	0.25	-0.05	0.27	0.14	0.10	-0.04
Appreciation of beauty	0.22	0.03	0.22	0.02	0.17	-0.04
Gratitude	0.38	-0.14	0.33	0.17	0.35	-0.11
Hope	0.34	-0.18	0.33	0.20	0.31	-0.05
Humour and playfulness	0.40	-0.11	0.28	0.20	0.25	-0.06
Spirituality	0.36	-0.23	0.28	0.17	0.32	-0.03

Note: AFM-PA = Affectometer – Positive affect; AFM-NA = Affectometer – Negative affect; FORQ = Fortitude Questionnaire; SOC = Sense of Coherence; SWLS = Satisfaction with life scale; GHQ = General Health Questionnaire.

Table 3 – Confirmatory principal components factor analyses (with varimax rotation) on items within VIA-subcales

Strength	Factors retained	Eigenvalues	% variance explained	Cumulative percentage
Curiosity	1	2.94	29.41	
	2	1.11	11.12	
	3	1.06	10.56	51
Love of learning	1	3.35	33.53	
	2	1.22	12.16	
	3	1.00	10.03	56
Open- mindedness	1	3.14	31.37	
	2	1.22	12.19	44
Creativity	1	3.50	34.97	
	2	1.24	12.14	47
Perspective	1	2.66	26.59	
	2	1.33	13.30	40
Bravery	1	3.08	30.79	
	2	1.22	12.15	43
Persistence	1	3.59	35.86	
	2	1.15	11.49	47
Integrity	1	2.69	26.88	
	2	1.28	12.79	
	3	1.12	11.28	
	4	1.00	10.06	61
Zest/Vitality	1	3.23	32.33	
	2	1.08	10.84	43
Love	1	2.64	26.41	
	2	1.23	12.32	39
Kindness	1	2.92	29.20	
	2	1.09	10.95	40
Social intelligence	1	2.89	28.95	
	2	1.17	11.73	

	3	1.08	10.80	51
Citizenship	1	3.40	33.99	
	2	1.20	12.03	
	3	1.00	10.00	56
Fairness	1	3.09	30.93	
	2	1.13	11.28	42
Leadership	1	4.03	40.27	
	2	1.03	10.32	51
Self- regulation	1	0.78	20.92	
	2	1.31	13.14	
	3	1.12	11.23	
	4	1.01	10.10	55
Prudence	1	3.16	31.58	
	2	1.11	11.15	43
Forgiveness and mercy	1	2.90	29.02	
	2	1.17	11.70	
	3	1.12	11.25	52
Modesty and humility	1	2.26	22.62	
	2	1.31	13.10	
	3	1.01	10.10	46
Appreciation of beauty	1	3.20	32.04	
	2	1.13	11.28	
	3	1.08	10.81	54
Gratitude	1	3.37	33.69	
	2	1.17	11.74	45
Hope	1	3.09	30.88	
	2	1.16	11.60	42
Humour and playfulness	1	3.19	31.91	
	2	1.09	10.95	43
Spirituality	1	3.29	32.87	
	2	1.15	11.46	
	3	1.05	10.47	55

Table 4 – Confirmatory principal components factor analysis with varimax rotation on 24 VIA-strengths (with pre-specification of six virtue clusters)

Strength	Factor loadings						Comm.
	1	2	3	4	5	6	
Curiosity	0.45	0.39	.	.	0.57	.	0.75
Love of learning	.	.	.	.	0.81	.	0.86
Open mindedness	0.51	.	0.40	.	0.45	0.32	0.78
Creativity	0.59	.	.	.	0.56	.	0.82
Perspective	0.68	0.32	.	.	.	.	0.76
Bravery	0.70	.	.	.	.	.	0.70
Persistence	0.36	.	0.57	.	0.34	0.34	0.73
Integrity	.	0.37	0.49	.	.	0.39	0.68
Zest/Vitality	0.38	0.39	.	0.43	0.42	.	0.73
Love	0.34	0.66	.	.	.	.	0.71
Kindness	0.40	0.56	.	0.36	.	.	0.73
Social intelligence	0.63	0.37	.	.	.	.	0.77
Citizenship	.	.	0.35	0.75	.	.	0.82
Fairness	.	.	0.40	0.53	.	0.40	0.77
Leadership	0.41	.	.	0.69	.	.	0.81
Self-regulation	.	.	0.73	0.31	.	.	0.74
Prudence	.	.	0.77	.	.	.	0.79
Forgiveness and mercy	.	0.39	0.32	0.53	0.37	.	0.69
Modesty and humility	.	0.60	0.51	0.33	.	.	0.73
Appreciation of beauty	.	0.70	.	.	0.40	.	0.76
Gratitude	.	0.52	.	.	.	0.55	0.77
Hope	.	0.41	0.38	.	.	0.49	0.69
Humor and playfulness	0.48	0.52	.	0.32	.	.	0.73
Spirituality	.	.	.	.	.	0.74	0.77
Eigenvalue	13.51	1.3	1.03	0.81	0.77	0.65	-
% variance explained	15.21	14.42	13.25	11.83	11.04	9.54	-

Note: Values less than 0.3 are not displayed.

Table 5 – Exploratory principal component factor analysis with varimax rotation on 24 VIA-strengths (without pre-specification of virtue clusters)

Strength	Factors			Comm.
	1	2	3	
Curiosity	0.64	0.49	.	0.67
Love of learning	0.68	.	.	0.61
Open-mindedness	0.73	.	0.42	0.79
Creativity	0.84	.	.	0.82
Perspective	0.58	0.48	0.3	0.67
Bravery	0.62	0.37	.	0.59
Persistence	0.59	.	0.54	0.69
Integrity	0.37	0.44	0.55	0.63
Zest/Vitality	0.49	0.51	0.42	0.68
Love	.	0.74	0.31	0.69
Kindness	0.33	0.73	.	0.71
Social intelligence	0.56	0.49	0.38	0.69
Citizenship	.	0.36	0.74	0.71
Fairness	0.31	0.44	0.66	0.72
Leadership	0.42	0.35	0.57	0.61
Self-regulation	0.33	.	0.74	0.66
Prudence	0.39	.	0.71	0.68
Forgiveness and mercy	.	0.43	0.57	0.57
Modesty and humility	.	0.5	0.62	0.64
Appreciation of beauty	0.39	0.69	.	0.64
Gratitude	0.39	0.65	.	0.67
Hope	0.40	0.51	0.42	0.60
Humour and playfulness	0.44	0.61	0.33	0.68
Spirituality	0.41	0.46	.	0.46
Eigenvalue	13.51	1.30	1.03	-
% variance explained	22.79	22.00	21.21	-

Note: Values less than 0.3 are not displayed