

Developing and validating a hostility, gratefulness and active support measuring instrument

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Declaration of originality of research

DECLARATION

I, Angeliqe Flattery, hereby declare that *Developing and validating a Hostility, Gratefulness and Active Support measuring instrument* is my own work and that views and opinions expressed in this study are those of the author and relevant literature references as shown in the references. I also declare that the content of this research will not be handed in for any other qualification at any other tertiary institution.

ANGELIQUE FLATTERY

NOVEMBER 2010

COMMENTS

The reader is reminded of the following:

- The references and the editorial style as prescribed by the *Publication Manual (5th edition)* of the American Psychological Association (APA) were followed in this dissertation. This practice is in line with the policy of the Programme in Industrial Psychology of the North-West University to use APA style in all scientific documents as from January 1999.
- The mini-dissertation is submitted in the form of a research article. The editorial style specified by the South African Journal of Industrial Psychology (which agrees largely with the APA style) is used, but the APA guidelines were followed in constructing tables.

ABSTRACT

Topic: Developing and validating a Hostility, Gratefulness and Active Support measuring instrument.

Keywords: Personality; Psychological assessment; Soft-heartedness; Hostility; Gratefulness; Active Support; South African Personality Inventory.

South Africa is a very diverse country. There are eleven spoken official languages, different cultures, beliefs, backgrounds, educational levels, races as well as differences in socioeconomic status. Psychometric measuring instruments used in South Africa are mostly imported from Europe or America and are often not standardised for the South African context. The translation of such imported measuring instruments usually results in bias, in contravention of the Employment Equity Act (1998) which stipulates that all psychometric assessments should be bias-free, equivalent, and fair. It is of tremendous importance to take a country's political, economic and social history into account before developing a psychometric instrument, to ensure that the instrument will adhere to all legal requirements.

A quantitative research design was used in this study. The sample consisted of students from tertiary institutions in North-West and Gauteng Provinces (SH-1: $n = 473$; SH-2: $n = 476$). Convenience sampling was used since the aim of the study was to test the reliability and validity of a newly developed instrument. Questionnaires were distributed amongst the participants from the tertiary institutions, to be completed within a set time and collected immediately after completion.

The first objective of the study was to develop a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster of a new personality measure being developed for the South African context, namely the South African Personality Inventory (SAPI). Items were derived from person-descriptive terms gathered through a qualitative research design. The aim of this qualitative research design was to gather as many person-descriptive terms as possible and integrating these terms into a personality instrument. A principal component analysis was conducted to determine the item correlations, and items that did not function as expected

were removed. Internal consistency coefficients were calculated to determine the item reliabilities. The second aim of this study was to determine the factor structure for the three subclusters of the Soft-heartedness cluster included in this study (pertaining to these three subclusters). A factor analysis was performed. A higher-order factor was present and a second-order analysis was performed, using the factor correlation matrix as input on the results. From the three subclusters assessed in this study, only two subclusters were extracted, and were labelled Hostility and Congenial Behaviour. This could be an indication that the positive and the negative items are clustering together in two separate groups, one indicating positive behaviour and the other negative behaviour. Finally, the construct equivalence across different race groups was evaluated by considering Tucker's phi coefficient and comparing the factor pattern matrices of the two factors obtained to compare the factor solutions between the white and African race groups respectively. The results indicated that each of the facets had similar loadings on their posited factors for both groups and that the two factors were represented by the same facets irrespective of the race groups.

Recommendations were made for future research.

OPSOMMING

Onderwerp: Die ontwikkeling en Validering van 'n meetinstrument vir Vyandigheid, Dankbaarheid en Aktiewe Ondersteuning.

Kernwoorde: Persoonlikheid, Psigometriese assesserings, Teerhartigheid, Vyandigheid, Dankbaarheid, Aktiewe Ondersteuning, Suid-Afrikaanse persoonlikheidsinventaris

Suid-Afrika is 'n baie diverse land. Daar is elf verskillende amptelike tale, verskillende kulture, gelowe, agtergronde, opvoedkundige vlakke, rasse sowel as verskille in sosioëkonomiese status. Psigometriese meetinstrumente wat in Suid-Afrika gebruik word, word meestal ingevoer vanaf Europa of Amerika en is in baie gevalle nie gestandaardiseer vir die Suid-Afrikaanse konteks nie. Die vertalings van hierdie ingevoerde meetinstrumente het sydigheid tot gevolg; hulle is dus strydig met die bepalings van die Wet op Gelyke Indiensneming wat stipuleer dat alle psigometriese evalueringe onsydig, ekwivalent en regverdig moet wees. Dit is uiters belangrik om 'n land se politieke, ekonomiese en sosiale geskiedenis in ag te neem voordat enige psigometriese meetinstrument ontwikkel word. Sodanige meetinstrument moet aan alle wetlike vereistes voldoen.

'n Kwantitatiewe navorsingsontwerp is in die studie gebruik. Die steekproef het bestaan uit studente van tersiêre instellings in Gauteng en Noordwes (SH-1: $n = 473$; SH-2: $n = 476$). 'n Gerieflikheidssteekproef is gebruik aangesien die doel van hierdie studie was om die geldigheid en betroubaarheid van 'n nuwe meetinstrument te toets. Vraelyste is uitgedeel aan respondente van die tersiêre instansies. Hierdie vraelyste moes binne 'n gegewe tydperk voltooi word en is dadelik na voltooiing ingeneem.

Die eerste doelwit van die studie was om 'n geldige en betroubare meetinstrument te ontwikkel wat die subkonstrukte Vyandigheid, Dankbaarheid en Aktiewe Ondersteuning van die Teerhartigheidskonstruk van 'n nuwe persoonlikheids meetinstrument bepaal wat ontwikkel word vir die Suid Afrikaanse konteks, naamlik die Suid Afrikaanse Persoonlikheids Inventaris (SAPI). Items is ontwikkel van persoonsbeskrywende terme wat ingesamel is deur 'n kwantitatiewe navorsingsontwerp. Die doel van hierdie kwantitatiewe navorsingsontwerp was om soveel moontlik persoonsbeskrywende terme in te samel en om hierdie terme in 'n

persoonlikheidsinstrument te integreer. 'n Hoofkomponentanalise is uitgevoer om die itemkorrelasies te bepaal. Die items wat nie na verwagting gefunksioneer het nie, is uitgehaal. Internekonsekwenheidskoeffisiënte is bereken om die items se betroubaarheid te bepaal.

Die tweede doelwit van hierdie studie was om die faktorstrukture vir die drie subkonstrukte van die Teerhartigheidskonstruk ingesluit in hierdie studie te bepaal (met betrekking tot die drie subkonstrukte). 'n Faktorontleding is uitgevoer. 'n Hoërordefaktor was teenwoordig en 'n tweede-orde-ontleding is uitgevoer. Die faktorkorrelasiematriks is gebruik as inset op die resultate. Van die drie subkonstrukte getoets in die studie het twee oorgebly, naamlik Vyandigheid en Simpatieke Gedrag. Dit kan 'n aanduiding wees dat die positiewe en negatiewe items in twee aparte groepe uiteenval, een wat wys na positiewe gedrag en die ander na negatiewe gedrag.

Laastens is die konstrugelykwaardigheid oor verskillende rasse-groepe geëvalueer deur Tucker se phi-koeffisiënt in ag te neem om sodoende die faktoroplossings tussen die blanke en swart rasse-groepe respektiewelik te bepaal. Die resultate het aangedui dat elkeen van die fasette gelyksoortige ladings op hul gepostuleerde faktore vir beide groepe toon en dat die faktore verteenwoordig is deur dieselfde fasette ongeag die rasse-groep.

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LIST OF ABBREVIATIONS

APA	American Psychological Association
SAPI	South African Personality Inventory
FFM	Five Factor Model
NEO-PI-R	NEO Personality Inventory
B5	Big Five
EPI	Eysenck Personality Inventory
EPP	Eysenck Personality Profiler
EPQ	Eysenck Personality Questionnaire
EPQ-P	Eysenck Personality Questionnaire Psychoticism scale
EPQ-E	Eysenck Personality Questionnaire Extraversion scale
EPQ-N	Eysenck Personality Questionnaire Neuroticism scale
EPQ-L	Eysenck Personality Questionnaire Lie scale
CPAI	Chinese Personality Assessment Inventory
GNP	Gross National Product
IRT	Item Response Theory
DIF	Differential Item Functioning Theory
SH-1	Soft-heartedness Questionnaire 1
SH-2	Soft-heartedness Questionnaire 2
HPCSA	Health Professions Council of South Africa

CHAPTER 1

INTRODUCTION

This mini-dissertation focuses on the development and validation of three subclusters of the Soft-heartedness cluster in the development of the South African Personality Inventory (SAPI). In this chapter, the research objectives and specific objectives are discussed. The research design and research method are explained, and the chapter summary and the division of chapters then follow these.

1.1 PROBLEM STATEMENT

1.1.1 Overview of the problem

South Africa has 11 official languages and individuals belonging to the different languages are diverse in terms of race, socio-economic status, culture and educational backgrounds. In terms of measuring personality, South Africa mostly uses international trends by modifying personality measurements that are used abroad; however, these tests were not designed to take the social, political and economic history of South Africa into consideration and have a major impact on fair assessments in South Africa (Foxcroft & Roodt, 2001). The Employment Equity Act (1998) states that psychological testing is only allowed when ‘the test [...] being used (a) has been scientifically shown to be valid and reliable, (b) can be applied fairly to all employees; and (c) is not biased against any employee or group.’ Nel (2008) states that the main cause of the problems South Africa is currently facing regarding the use of personality inventories is the application of inventories that are not psychometrically appropriate. It is important to consider whether personality measurements developed for one culture can be validly applied for assessment of personality in other cultures; and currently the standardisation of imported inventories does not always account for these diverse factors, restricting the application of these factors in the South African context (Nel, 2008).

Taking into account the transformation of the South African society since 1994, there is a need for measuring instruments that will meet the requirements of the Employment Equity

Act, and will be valid for use across the 11 official languages of South Africa (Meiring, Van de Vijver, Rothmann & Barrick, 2005). Since current personality measures have largely discriminated against some language groups in South Africa (*see* Foxcroft, Paterson, le Roux & Herbst, 2004; Heaven, Connors & Stones, 1994; Taylor, 2004), a number of researchers initiated the development of the South African Personality Inventory (SAPI¹). The aim of the SAPI project is to develop a complete measurement, which will be able to assess personality across the 11 different languages in South Africa (Nel, 2008).

During the first phase of the development of the SAPI project, nine personality clusters were identified. These included Extroversion, Soft-heartedness, Conscientiousness, Emotional Stability, Intellect, Openness, Integrity, Relationship Harmony, and Facilitating. This study focuses on three of the subclusters of the Soft-heartedness cluster. Nel (2008) defines Soft-heartedness as a feeling of concern for the welfare of someone else (especially someone defenceless); low concern for own interests and welfare; and being thankful for others or overall life being. Furthermore, it is an actively expressed feeling of dislike of aggressive behaviour; it denotes a compassionate type of person who is understanding and sensitive towards others' feelings; and a concept of community from subSaharan Africa – often summarised as humanity towards others (Nel, 2008).

Nel (2008) noted that Soft-heartedness is the biggest cluster in the SAPI project, with a strong correspondence with the Agreeableness factors of most of the other personality inventories, which include the Big Five, HEXACO and the Chinese Personality Assessment Inventory (CPAI). The Big Five personality traits' Agreeableness largely agrees with Soft-heartedness. Individuals who score high on the Big Five Agreeableness scale tend to be humane, sympathetic, and glad to help, they also have value and show respect for what other people believe (Zhang & Akande, 2002), which agrees with the Soft-heartedness definition of being a compassionate type of person who is understanding and sensitive towards others' feelings (Nel, 2008). Within the six-dimensional HEXACO model (Imperio, Church, Katigbak & Reyes, 2008), the Honesty-Humility, Agreeableness and (to some extent) Emotionality

¹ “The SAPI, an acronym for South African Personality Inventory, is a project that aims to develop an indigenous personality measure for all 11 official languages in South Africa. Participants are Byron Adams (University of Johannesburg and Tilburg University, the Netherlands), Deon de Bruin (University of Johannesburg), Karina de Bruin (University of Johannesburg), Carin Hill (University of Johannesburg), Leon Jackson (North-West University), Deon Meiring (University of Pretoria and University of Stellenbosch), Alewyn Nel (North-West University), Ian Rothmann (North-West University), Michael Temane (North-West University), Velichko Valchev (Tilburg University, the Netherlands), and Fons van de Vijver (North-West University and Tilburg University, the Netherlands).”

HEXACO factors roughly correspond to rational variants of the Big Five Agreeableness factor; the HEXACO agreeableness subsumes traits such as tolerance, patience, and gentleness (Ashton, Kibeom, Marcus & de Vries, 2007; Culp, 2006). This relates to the definition of Soft-heartedness that indicates the gentle side of people caring about the welfare of others (Nel, 2008). Lastly, the CPAI factors include Dependability, Interpersonal Relatedness, Social Potency, and Individualism. Although the labels are different, these factors are very similar to four of the five factors of the Big Five, namely Neuroticism, Extraversion, Agreeableness, and Conscientiousness (Van de Vijver & Van Hemert, 2008). Since Soft-Heartedness and the Big Five's Agreeableness correspond, it can be assumed that Soft-Heartedness will also relate to some of the CPAI factors.

The study will focus on among others the Hostility, Gratefulness, and Active Support subclusters of the Soft-heartedness cluster. Hostility relates generally to anger and aggression and is therefore a representation of the tendency to experience anger and related states such as aggression and frustration (Costa & McCrae, 1992). The literature furthermore describes hostility as a trait that measures the tendency to understand bitterness and anger; the inclination to be physically, psychologically or emotionally aggressive; the enjoyment of beating or fighting with others; and the degradation of others by fighting or verbally assaulting them (Nel, 2008; Taylor, 2004). Gratefulness can be described as the tendency to express gratitude and appreciation for others or for life in general; as well as an inherent sense of thankfulness and wonder for all the exceptional and united features of life (Piedmond, 1999; Nel, 2008). Lastly, according to Nel (2008), Active Support entails the quality of being generous; being actively involved with the well-being of one's peers and broader community; lending a helping hand when needed; and supporting the less fortunate.

The objectives of this study were firstly to develop a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster. Secondly, the aim of this study want to determine factor structures for the Soft-heartedness cluster (pertaining to these three subclusters), and finally it wishes to compare the factor solutions between race groups respectively.

1.1.2 Literature review

Personality

Defining personality is a mammoth task, since there are so many views on what personality really entails. Definitions generally include references to a person's characteristic pattern of thought, behaviour, feelings and emotion; the psychological mechanisms behind those patterns; a person's basic tendencies, attributes, or traits; a configuration of emotions, cognitions, and habits; and how a person interacts with others (*see* Aiken & Groth-Marnat, 2006; Foxcroft & Roodt, 2005; Funder, 1997; Saucier, 2008; Triandis & Suh, 2002). McAdams (1995) described personality based on three levels: 1) the basic behavioural and emotional tendencies, which show the stable characteristics of a person; 2) personal projects and concerns, identifying what the individual is doing and what it is that he/she wants to achieve; and 3) the narrative, indicating how a person constructs an integrated identity.

According to Jung (1990), personality may be divided into one of various personality types in terms of two constructs, namely attitudes and functions. There are two basic attitudes, namely extraversion and introversion. Every personality has both these attitudes; however, in every personality one of these attitudes is dominant and conscious, while the other is unconscious (Jung, 1990). Jung (1990) assumed that each person has a specific way in which he/she observes the world around him/her and adds meaning to every experience. Personality psychologists often regard traits as predispositions to behave in certain ways (Foxcroft & Roodt, 2001). From this perspective, someone with a trait of extroversion will be inclined to seek out environments where there is a lot of social interaction between people (Foxcroft & Roodt, 2001). In combining a person's dominant attitude and function, the basic personality type may be determined, and the personality types are the patterns in which people prefer to make judgements (Jung, 1990). There are numerous characteristics that define the differences between people. These include values, traits, personal identity, behaviour styles, sense of humour, interpersonal warmth, and acculturation (Aiken & Groth-Marnat, 2006). Everybody has all of these personality traits, but a description of an individual's personality should be an indication of the relative strength of the personality trait; therefore, this pattern of weak and strong characteristics forms a profile that helps us to understand, determine, and describe how one individual differs from another (Aiken & Groth-Marnat, 2006).

Approaches toward Developing Personality Measures

The exploration and development of personality measurements, as well as comparing them across different cultures, have become very popular, and different approaches are used (Nel, 2008). These approaches can include the etic, emic, or the lexical approach. According to Sue (1983), the etic approach places emphasis on the universals or core similarities in people, whereas the emic approach utilises a culture-specific orientation. Van de Vijver and Van Hemert (2008) stated, ‘An etic approach of personality has the aim of developing a single model that captures all features of personality across the cultures of a study’ (p. 64). Therefore, etic refers to a universal or culture-free approach; whereas the emic approach is more culture-specific (Cheung, Conger, Hau, Lew & Lau, 1992). Emic studies are mostly associated with models that are developed for use in non-Western cultures (Van de Vijver & Van Hemert, 2008); however, emic concepts cannot be introduced in the translation of personality assessments (Cheung *et al.*, 1992).

The lexical approach reflects dispositions that have been encoded in a language because it represents attributes that are significant for the society speaking that language (Benet-Martínez & Oishi, 2006). According to Benet-Martínez and Oishi (2006, p. 8), ‘The Lexical approach views culture as an independent variable that may impact the level, expression, and correlates of traits and the underlying structure or dimensions of personality.’ The importance of the lexical hypothesis is that it provides an approach for research designed to identify the key dimensions of personality differences—that is, a small set of independent axes along which individuals differ in their distinctive behavioural tendencies (Ashton & Kibeom, 2005).

Cheung, Leung, Zhang, Sun, Gan and Song (2001) found that in cross-cultural personality measurements, the etic dominance is evident, as can be seen in the development of the Big Five where McCrae and Costa (1997) preferred the etic approach to ask questions regarding the cross-cultural generality of the Big Five. However, Nel (2008) identified various personality measurements that have been developed using the lexical approach (e.g. the Big Five; Eysenck’s ‘Giant’ Three; the Big Seven; HEXACO; CPAI).

Existing Personality Models and Measures

Regardless of the developmental approach, various personality models have been used to develop personality tests that would to measure and classify personality (Manktelow &

Lewis, 2005). These include the Big Five model, the Big Seven model, the HEXACO model, Eysenck's Giant Three Personality Structure, and the Chinese Personality Assessment Inventory. According to the Literature many measurements have evolved from considering individual differences described in terms of five factors (Big Five/B5), including the five factor model (FFM) of personality (Costa & McCrae, 1995; McCrae & Costa, 1997). The five basic personality dimensions rising from this model are identified as *Neuroticism* (ego strength, satisfaction, affect); *Extraversion* (talkative, assertive, energetic); *Openness* (imagination, curiosity, intellectualism, intelligence, intellect, intellectual interests, and culture); *Agreeableness* (social adaptability, likeability, friendly compliance, agreeableness, love); and *Conscientiousness* (dependability, task interest, will to achieve, impulse control, work); these, dimensions relate to various behavioural, social, cognitive, and personality dimensions of a person (Burger & Caldwell, 2000; Kelly, 2006; Oliver & Srivastava, 1999). The revised NEO Personality Inventory (NEO-PI-R) (Costa & McCrae, 1992) is a commonly used personality-measuring instrument that measures these five basic personality dimensions. However, there are no clear implications that personality differences can be reduced to only five traits (John & Srivastava, 1999). These five dimensions should rather be seen as personality at the broadest level of abstraction, and each of these dimensions summarises a large number of more specific personality characteristics (John & Srivastava, 1999).

In the development of the Big Seven model, researchers argued that not enough terms were included from dictionaries during the initial development of the Big Five and the Five-Factor model (Benet & Waller, 1995; Block, 1995). In their study of personality, Benet and Waller (1995) used self-ratings from which a seven-construct solution were derived, with the first five labels closely linked to the B5 and the FFM. These labels are Positive Emotionality, Negative Emotionality, Conscientiousness, Agreeableness, Unconventionality, Positive Valence, and Negative Valence; three of the seven factors of the Big Seven model are very similar to the Big Five dimensions of Conscientiousness, Agreeableness, and Openness (Benet-Martinez & John, 2000; Benet-Martinez & Waller, 1997). Benet-Martinez and John (2000) stated that the other four dimensions represented (and were named) Pleasantness and Engagement (affect dimensions representing rotations of Extraversion and Neuroticism) and Positive and Negative Valence (esteem dimensions representing positive and negative self-evaluation).

The HEXACO model consists of six factors: Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to experience (Imperio *et al.*, 2008). According to Ashton and Lee (2007), three of the factors closely correspond with the B5 and FFM model of personality; these include the Extraversion, Conscientiousness, and Openness to Experience factors. The sixth factor of this model, Humility-Honesty, was not closely related to any of the other factors, although it corresponds with the FFM's Agreeableness (Ashton & Lee, 2005). The variant of Honesty-Humility observed in the English language is narrower than that observed in many other languages (Ashton, Lee, de Vries, Perugini, Gnisci & Sergi, 2006). According to Ashton *et al.* (2006) 'this is mainly true of those variants of honesty-humility that have wrapped up terms describing 'overall altruism' content, which include sympathy, soft-heartedness, and generosity' (p. 871). All sympathy-related facets in the HEXACO model seem to load more strongly to the Honesty-Humility factor than the set Agreeableness factor, and this makes it different from the B5 and FFM factor of Agreeableness (Ashton & Lee, 2005).

Another important personality measurement is Eysenck's Giant Three Personality Structure, where only three broad personality dimensions were identified to measure personality (Eysenck & Eysenck, 1975). The three main traits identified in the Eysenck Personality Questionnaire (EPQ) are Extroversion vs. Introversion (E), Neuroticism vs. Emotional Stability (N), and Psychoticism (P). The first two factors, Extroversion vs. Introversion and Neuroticism vs. Emotional Stability, are very similar to the Extraversion and Emotional Stability factors of the Big5/FFM. The third factor, Psychoticism, includes Agreeableness and Conscientiousness (Eysenck, 1992). According to Nel (2008), a number of inventories were developed to measure the Giant Three, namely The Eysenck Personality Questionnaire (EPQ), Eysenck Personality Inventory (EPI), and the Eysenck Personality Profiler (EPP); the last measure is more frequently used for research purposes. The EPQ consists of four scales, namely 1) the Psychoticism scale (EPQ-P), designed to measure tough-mindedness; 2) the Extraversion scale (EPQ-E), designed to measure extraversion versus introversion; 3) the Neuroticism scale (EPQ-N), designed to measure emotionality or emotional instability; and 4) the Lie scale (EPQ-L). The Lie scale was initially intended to measure a response tendency, but has shown to tap a stable personality characteristic as well (Eysenck & Eysenck, 1975).

Lastly, the Chinese Personality Assessment Inventory (CPAI) (Cheung, Leung, Fan, Song, Zhang & Zhang, 1996) was developed with the intention to construct an inventory suited to local needs by identifying culturally unique dimensions as well as cross-cultural universals. According to Cheung, Leung *et al.* (1996), ‘the CPAI is a multiphasic personality inventory that covers personality characteristics from normal as well as diagnostic assessment’ (p. 183). The personality constructs included in the CPAI were derived from groups of personality adjectives or person-descriptions reflecting daily life experiences (Cheung *et al.*, 2001). Therefore, the emic personality characteristics that were deemed to be of specific interest to the Chinese culture, but are not covered in imported personality inventories, were included in the CPAI (Cheung *et al.*, 1996). The emic personality characteristics included Harmony; *Ren Qing* (relationship orientation); Modernisation; Thrift vs. Extravagance; *Ah-Q* Mentality (defensiveness); and Face (Cheung *et al.*, 2001). The final version of the CPAI consists of four personality factors, labelled as Dependability, Chinese Tradition, Social Potency, and Individualism (Chan, 2005). According to Cheung (2006) the CPAI structure corresponds well with the FFM of Costa and McCrae (1992), with Dependability, Social Potency, and Accommodation overlapping strongly with Extraversion, Agreeableness, Conscientiousness, and Neuroticism. However, the last construct, Openness to Experience, was found to have the least representation in the Chinese culture (Cheung, 2006).

Culture and Personality

A cultural psychology of personality starts with an acknowledgment that individual difference in behaviour is very commonly marked and given importance, and that individuals do have patterns of behaviour that are specific and distinctive from each other (Markus, 2004). Culture can be seen as a rather ‘still’ meaning system, which is stable and shared among people, or as an ‘energetic’ meaning-making process, in which people are engaged when they network with each other, sharing and contesting their understandings about the world and themselves (Kashima, 2004). According to Markus (2004), culture is not an entity, but rather, like personality, involves doing. Individuals will select their own way of life that will suit their values, temperament, and philosophy of life (Allport, 1961). Allport (1961) also believed that real culture is flexible, since people either like or dislike certain aspects of their culture, and internalise their culture differently. Oishi (2004) concluded that Allport accepted the fact that no matter how strong the needs, temperament, and values of individuals

are, culture, role, and situation will still have an extensive influence on their personality, limiting the range of its behavioural expression.

Culture can furthermore be defined as ‘The collective programming of the mind that distinguishes one group or category of people from another’ (Hofstede & McCrae, 2007, p. 8). This emphasises that culture is (a) a collective, not individual, attribute; (b) not directly visible but manifested in behaviours; and (c) common to some but not all people (Hofstede & McCrae, 2007). According to Matsumoto (2006), cultural worldviews are social constructions of reality that presumably characterise important aspects of one’s culture (e.g. American culture is individualistic; East Asian cultures are collectivistic and group-oriented; Mexican culture is family-oriented, etc.). Therefore, the difference of their worldviews across cultures contributes to the fact that these worldviews can help to construct different self-concepts in people of different cultures (Matsumoto, 2006). The concept of the self can therefore be defined as a social structure where cultural worldviews are an ideological belief system that individuals use as guidelines to explain their and others’ behaviours (Markus, 1977).

Expression differences exist amongst cultures, since the meaning of social relationships differs from one culture to the next, creating different guiding principles for the regulation of expressive behaviour (Matsumoto, 2006). According to Church and Katigbak (1988), personality may not be different across cultures, but expressions of personality are highly likely to differ. Culture and personality should be seen as mutually constitutive or making each other up (Church, 2000). Personality psychologists who subscribe to trait theory, like McCrae and Costa, believe that the foundation of personality is biological and that culture may influence the level, expression, and correlates of personality traits (Church, 2001). Kashima (2004) stated, ‘psychological processes that result from the interaction between the culturally infused person and situation, then, would shape the future development of the person and situation themselves. Such a dynamic relationship between personality and culture may escape the theoretical attention of personality psychology if sociality is not taken seriously. Examination of the interplay of person, culture, sociality may present one of the more promising future directions in the research on personality and culture’ (p. 58).

When personality measures are applied across different cultures, issues of measurement bias and equivalence are of importance, since some personality questionnaires were not developed to be used in other cultures, and scores of cultural groups are frequently compared (Church, 2001; Schmit, Kihm & Robie, 2000; Van de Vijver & Van Hemert, 2008). Furthermore, the cross-cultural validity of personality scales may be attenuated by response styles, such as social desirability, acquiescence, and extremity responding (Van de Vijver & Van Hemert, 2008). It is therefore important to consider whether personality measurements developed for one culture can be validly applied for assessing of personalities in other cultures (Nel, 2008). There is criticism of a blind importation of Western instruments into non-Western countries; validity and reliability problems may be encountered, there is doubt about the assumption that personality traits are universally present across cultures (Chan, 2005); especially since cultures vary with respect to different types of responding behaviour in different situations (Van de Vijver & Van Hemert, 2008).

When translating existing personality instruments, the receiving culture may not have the required support for interpreting and translating personality measurements and extending their theories into the new culture (Chan, 2005). According to Chan (2005), the imported constructs and measures may not be as good as indigenous instruments or theory in predicting key outcomes; it may therefore not fully include the local reality associated with a concept. The two methodological issues that challenge cross-cultural personality testing include the question of comparability of personality structures and the compatibility of scores across cultures (threats to the comparability of scores are seen as bias) (Van de Vijver & Van Hemert, 2008). In addition, two classes of country variables associated with response styles in cross-cultural studies exist, namely socio-economic context and cultural values. Socio-economic and political indicators such as gross national product (GNP), political rights, and level of democracy are relevant to socially desirable and acquiescent responding (Van de Vijver & Van Hemert, 2008).

When considering psychological testing in South Africa, it is therefore important to take the country's political, economical and social history into account (Claassen, 1997). Since the 1990s, tests were imported from abroad and applied throughout all sectors of the community (Foxcroft, 1997). In the 1980s certain aspects of fairness, bias, and discriminatory practices received attention in line with international developments (Meiring *et al.*, 2005). Initially,

separate personality measurements were developed for Afrikaans- and English-speaking individuals (Claassen, 1997). Bilingual measures were developed later for Afrikaans- and English-speakers and separate measurements for individuals who spoke an African language (Meiring *et al.*, 2005). With the emergence of the Employment Equity Act (1998), the obligation of using psychological measurements that are valid, reliable, fair and not biased rests on the psychologist using these measurements.

The South African Personality Inventory (SAPI)

Since the democratic elections in 1994, there was a shift toward developing stronger cultural appropriateness of psychological measurements (Meiring *et al.*, 2005). The SAPI project was started in order to address the urgent need for measuring instruments that meet the requirements of the Employment Equity Act and that can be used among all the cultural groups and languages in South Africa. The SAPI project consists of two stages. In the first phase, the embedded personality structure within the 11 official languages of South Africa was unravelled; the second phase aims to develop and test instruments in each language group based on the taxonomy derived in the first stage (Nel , 2008).

According to Nel (2008), during the first stage, interviews were used to obtain data, after which the lexical, and a combined etic-emic approach was used to analyse data in order to understand the semantic meaning of responses. 191 facets were derived from the data analyses and these 191 facets went through a further cluster analysis after which they were divided into four groups, namely common to all official languages, semi-common, semi-specific, and language-specific. A personality structure was developed from these facets, which consists of 37 subclusters and 9 overall clusters. Resources used in this process were Dictionaries, Theory and Cultural expert's inputs. The nine clusters are Extraversion, Soft-heartedness, Conscientiousness, Emotional Stability, Intellect, Openness, Integrity, Relationship Harmony, and Facilitating (Nel, 2008).

Soft-heartedness

The Soft-heartedness cluster is accepted as the largest cluster in the SAPI structure, with a strong association with the Agreeableness factors of most of the other personality models discussed in this study (Nel, 2008). Agreeableness is defined as someone's interpersonal course along a continuum from sympathy and nurturance to cynicism and hostility (Luyckx,

Soenens & Goossens, 2006). According to Oliver and Srivastava (1999), Agreeableness contrasts a pro-social and communal orientation towards others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty. Oliver and Srivastava (1999) state that Agreeableness has been labelled social adaptability, likeability, friendly compliance, agreeableness, and love.

According to John, Caspi, Robins, Moffitt and Stouthamer-Loeber (1994), Agreeableness closely corresponds with the synonyms affectionate (not critical or sceptical), forgiving (behaves in a giving way), generous (sympathetic and considerate), kind (arouses liking), sympathetic (warm and compassionate) and trusting (trustful). These synonyms relate to the subclusters of the Soft-heartedness cluster as derived by the SAPI project. These subclusters include Amiability (kind and likeable), Egoism (generous and not greedy), Gratefulness (appreciative and grateful), Hostility (trusting and not abusive), Empathy (compassionate and respectful), and Active Support (helpful and supportive). During examination of the original responses of the SAPI interview data, the participants broadly defined Soft-heartedness as a personality trait where someone has the characteristics of being appreciative, grateful, helpful, supportive, heedful, protective, and caring for the community. Furthermore, the following characteristics will not be present: tendency to be abusive, aggressive, critical, cruel, delinquent, denigrating, intimidating, undermining, verbally aggressive and exploiting. This confirms that Soft-heartedness and Agreeableness relate to some degree. This study will focus only on Hostility, Active Support, and Gratefulness.

Hostility consists of 11 facets, namely abusive, aggressive, critical, cruel, delinquent, denigrating, exploiting, intimidating, trusting, undermining, and verbally aggressive. Literature defines hostility as a negative attitude toward other people, consisting of hate, denigration, and ill will, devaluating the worth and motives of others, expecting that others are likely sources of wrong-doing (Porter & Alison, 2004; Smith, Glazer, Ruiz & Gallo, 2004). Hostility can furthermore be described as a relational view of being in opposition toward others, a desire to inflict harm or see others harmed, reflecting visibly aggressive interaction between people, involving violent and aggressive behaviours (Porter & Alison, 2004; Smith *et al.*, 2004). Porter and Alison (2004) noted that hostility in one person tends to bring out hostility in another during interpersonal interactions. This relates to the definition of the subcluster Hostility as derived by the SAPI project. According to the SAPI responses

from the 11 facets of Hostility, it refers to someone who is cruel towards others, abuses them physically and emotionally; being violent, short-tempered and discouraging; and being aggressive, inconsiderate and harsh. Furthermore, hostile behaviour includes being critical and insulting towards others, being outspoken, looking for the weaknesses in other people, bullying others, and being dominating, as well as using corrosive language, vulgar words, and an abusive form of speech.

Previous studies defined Gratefulness as the attitude of appreciating life as a gift and recognising the significance of expressing that appreciation (Watkins, Grimm & Kolts, 2004). According to McCullough, Emmons and Tsang (2002), gratitude relates to traits such as extraversion, agreeableness, forgiveness, and empathy. Gratefulness has two facets, namely grateful and appreciative. According to the SAPI responses, gratefulness can be defined as someone who expresses appreciation, who is thankful and shows gratitude. Behaviour also includes commending others on work well done, and enjoying and being satisfied with what you have.

Active Support can be seen as the use of educational procedures to enhance personal competencies and system-change procedures to build an environment in which those competencies can be applied to encourage a good quality of life (Carr, 2007). According to Carr (2007), 'support makes it possible to accept and live with problems that we cannot completely resolve' (p. 6) and humanity involves kindness and intelligence that helps people to build relationships with others, generating support. Active Support consists of the following facets: community involvement, heedful, helpful, protective, solving problems of others, and supportive. Active Support, according to SAPI responses, can therefore be defined as someone who takes an interest in and cares for the community as well as being honourable and a role model for others in the community. It also refers to being caring, available and willing to listening when others experience problems and when they are in a crisis, as well as inspiring others and being willing to give assistance without expecting anything in return. Lastly, being encouraging, concerned about others and comforting others also encompass Active Support.

The following research questions can be formulated based on the above-mentioned description of the research problem:

- Can a valid and reliable measuring scale for Hostility be developed?
- Can a valid and reliable measuring scale for Gratefulness be developed?
- Can a valid and reliable measuring scale for Active Support be developed?
- Can these Soft-heartedness subclusters be standardised for the South African context?
- What does the factor structure of a Soft-heartedness cluster look like?
- How do the factor solutions of the race groups compare?
- What recommendations could be made for future research?

1.2 RESEARCH OBJECTIVES

1.2.1 General objective

The general objective of this research is to develop a valid and reliable measuring instrument that assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster of the SAPI.

1.2.2 Specific objectives

The specific objectives of this research are:

- To develop a valid and reliable measuring instrument that scientifically assesses the Hostility subcluster of the Soft-heartedness cluster.
- To develop a valid and reliable measuring instrument that scientifically assesses the Gratefulness subcluster of the Soft-heartedness cluster.
- To develop a valid and reliable measuring instrument that scientifically assesses the Active Support subcluster of the Soft-heartedness cluster.
- To determine factor structures for the three subclusters (Hostility, Active Support and Gratefulness) of the Soft-heartedness cluster.
- To compare the factor solutions between race groups respectively.
- To make recommendations for future research.

1.3 PARADIGM PERSPECTIVE OF THE RESEARCH

The following part of this chapter will address the intellectual climate, discipline and the meta-theoretical assumptions (literature review and empirical study) of the study. The market of intellectual resources is also addressed, which includes theoretical beliefs and methodological beliefs. A specific paradigm perspective that includes the intellectual climate and the market of intellectual resources (Lundin & Lundin, 1996; Mouton & Marais, 1992) directs the research.

1.3.1 Intellectual climate

Mouton and Marais's (1992) views on the intellectual climate suggests a range of non-epistemological value systems/beliefs that are underwritten in any given period in a discipline. Furthermore, it refers to a collection of beliefs, values and assumptions that do not directly deal with the epistemological views of the scientific research practice, because it normally originates in non-epistemological contexts (Mouton & Marais, 1992).

1.3.2 Discipline

This research falls within the boundaries of the behavioural sciences; in the broader sense it falls within psychology (specifically personality psychology and cross-cultural psychology) and more specifically within industrial psychology. Personality psychology is about people, about the nature of human nature (Hogan, 2005), whereas cross-cultural psychology can be seen as a description of some underlying dynamics that make all cultures unique, where a better understanding of a culture leads to the better understanding of individuals and why they behave in certain ways (Kokt, 2003). Furthermore, industrial psychology can be defined as a scientific study of people within their work environment. This implies scientific observation, evaluation, and optimal utilisation and influencing of normal and, to a lesser degree, deviant behaviour in interaction with the environment (physical, psychological, social and organizational) as manifested in the world of work (Munchinsky, Kriek & Schreuder, 2002).

The subdisciplines of industrial psychology that will be focused on in this research are career psychology and psychometrics. Career psychology places the focus on people, choosing careers, preparing for occupations, entering the world of work, pursuing and changing occupations, and leaving the world of work to dedicate the knowledge and energies they have to leisure activities that may resemble in content the work that they did for pay or which may involve quite different types of knowledge and skill (Vondracek, 2001). Psychometrics is a systematic and scientific way in which psychological measures are developed and the technical measurement standards required of such measures (Foxcroft & Roodt, 2005).

These subdisciplines are relevant in this research, because they are strongly linked to the objectives of the general SAPI project, which is to develop a personality inventory that is appropriate for all different cultures at a conceptual level (Meiring, Van de Vijver, de Bruin & Rothmann, 2006). Culture-specific dimensions could be integrated in existing tests, although the development of an indigenous personality inventory might be more suitable for an understanding and assessment of personality in the South African context (Meiring *et al.*, 2006). Another objective of the general SAPI project is to uncover the personality structure of each of the 11 official languages in South Africa, and to recognise the shared and exclusive personality dimensions of the different language groups (Nel, 2008). An instrument will eventually be developed to measure personality in such a way that it will meet the requirements of the Employment Equity Act and to develop a unified personality structure for South Africa (Nel, 2008).

1.3.3 Meta-theoretical assumptions

Both the literature and the empirical study are done within the trait theory boundaries.

1.3.3.1 Literature review

According to Pervin, Cervone, and John (1967), the Trait Theory Approach paradigm is a school of thought that emphasises the fact that people display broad predispositions to respond in certain ways, that these dispositions are ordered in a hierarchical manner, and that the trait concept can be the groundwork for a scientific theory of personality. Traits therefore define the nature of personality. Allport proposes that traits consist of three properties,

namely frequency, intensity, and range of situations; whereas Eysenck suggests that variations in personality consist of continuous dimensions rather than discrete categories (Pervin *et al.*, 1967). Pervin *et al.* (1967) referred to personality traits as psychological characteristics that are stable over time and across situations. Furthermore, personality traits are consistent patterns in the way individuals behave, feel, and think. An accepted basic assumption of a trait point of view is therefore that people possess broad predispositions, namely traits, to respond in certain ways (Pervin *et al.*, 1967).

1.3.3.2 Empirical study

The Trait Theory Approach paradigm holds the assumption that traits are fundamental units of personality, representing broad predispositions to respond in particular ways (Pervin *et al.*, 1967).

1.3.4 Market of intellectual resources

The market of intellectual resources refers to that collection of beliefs that directly involves the epistemological status of scientific statements. It can be divided into two major types, namely epistemological beliefs, which can be described as the theoretical beliefs, and the methodological beliefs (Mouton & Marais, 1992).

1.3.4.1 Theoretical beliefs

Theoretical beliefs can be described as all beliefs that can make testable judgments regarding social phenomena. These beliefs can be classified as judgments regarding the ‘what’ and ‘why’ of human phenomena and includes all conceptual definitions, models and theories of the research (Mouton & Marais, 1992).

A. Conceptual definitions

The conceptual definitions relevant for this research are given below:

- *Personality* can be described as certain characteristics of a person's behaviour and it is the distinctive way that each person thinks, feels, behaves or adapts to different situations (Nadelson, 2001),
- *Psychological assessment* is a short sample of someone's behaviour, obtained under standard conditions, and scored according to a fixed set of rules that provide a numeric score or classification (Foxcroft & Roodt, 2005).
- *Soft-heartedness*: According to the original SAPI responses, Soft-heartedness is a personality trait where someone has the characteristics of being appreciative, grateful, helpful, supportive, heedful, protective, caring for the community.
- *Hostility*: According to the original SAPI responses, Hostility refers to someone who is cruel towards others, abusing them physically and emotionally; violent, short-tempered and discouraging; and aggressive, inconsiderate and harsh. Furthermore, hostile behaviour includes being critical and insulting towards others, being outspoken, looking for the weaknesses in other people, bullying others, and being dominating, as well as using corrosive language, vulgar words, and an abusive form of speech.
- *Active Support*: According to the original SAPI responses, Active Support can be defined as someone who takes interest in and cares for the community as well as being honourable and a role model for others in the community. It also refers to being caring, available and willing to listen when others experience problems and when they are in a crisis, as well as inspiring others and being willing to give assistance without expecting anything in return. Lastly, being encouraging, concerned about others and comforting others also Active Support.
- *Gratefulness*: According to the original SAPI responses, Gratefulness can be defined as someone who expresses appreciation, who is thankful and shows gratitude. Behaviour also includes commending others on work well done, and enjoying and being satisfied with what you have.

B. Models and theories

A model is in place in order to adhere to repeating the dynamics of an occurrence through the relation between the main elements in a process and to present them in a simplified way (Mouton & Marais, 1992). This research will be linked with the five-factor model and the model of Eysenck. According to McCrae and Allik (2002), the five-factor model is a

hierarchical model of trait structure, in which relatively narrow and specific traits are organised in terms of five broad factors, namely Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Proponents of the model claim that it encompasses all major dimensions of personality, and thus supersedes older trait models like Eysenck's (Eysenck & Eysenck, 1975). Pervin, Cervone and John (1997, p.262) stated that 'Eysenck's superfactors of Extraversion, and Neuroticism were found to be virtually equal to the same-named dimensions in the Big Five, and Eysenck's psychoticism superfactor was found to correspond to the combination of low Agreeableness and low Conscientiousness.'

A theory can be defined as a set of interrelated constructs (concepts), definitions and propositions that presents a systematic view of phenomena by indicating relations among variables, with the purpose of explaining and predicting the phenomena (Mouton & Marais, 1992). The concept of personality structure refers to the stable, enduring aspects of personality (Cervone & Pervin, 2008). Although different personality theories describe and conceptualise personality structures differently, Avdeyeva and Church (2005) state that two general approaches are commonly used to conceptualise the structure of personality: (1) the trait, nomothetic, or variable-centred approach (aims at delineating quantitative or continuous dimensions that can be used to describe the personalities of all individuals); and (2) the typological, idiographic, or person-centred approach (identifying a set of discrete, qualitatively different types of configurations of personality). This study focuses on the trait approach.

The research will furthermore make use of Item Response Theory (IRT) and Differential Item Functioning Theory (DIF). IRT methods are used as an expressive way of evaluating short forms and assessing their underlying measurement properties (Martin, Kosinski, Bjorner, Ware Jr, MacLean & Li, 2006). IRT is a set of statistical models for analysing categorical variables used to measure the same concepts, for instance questionnaire items assessing a particular construct (Martin, *et al.*, 2006). It is an efficient statistical technique for item selection and score estimation (Bjorne, Petersen, Groenvold, Aaronson, Elmqvist & Arraras, 2004). DIF analysis can be described as the process of testing for differences in performance on test items between groups that are matched on proficiency (Hauger & Sireci, 2008). DIF analysis evaluates whether or not test takers from different groups who are of comparable

proficiency on the entire test have equal probabilities of success on an item (Hauger & Sireci, 2008).

1.3.4.2 Methodological beliefs

Methodological beliefs can be described as viewpoints that make judgements about the nature and structure of science and scientific research (Mouton & Marais, 1992). This empirical study will be presented within the trait theory and methodological approach frameworks.

1.4 RESEARCH METHOD

For the purpose of this mini-dissertation, the research method will consist of a literature review and an empirical study. The results obtained are presented in the form of a research article.

1.4.1 Phase 1: Literature review

In phase 1 a complete review regarding personality, personality measurements, personality and culture, the SAPI project, the Soft-heartedness cluster, and the Active Support, Gratefulness and Hostility subclusters is done. The databases that will be consulted include:

- Ebsco Host
- Emerald
- Sabinet Online
- SAePublications
- A – Z Magazine List
- SAPI BSCW
- Google scholar
- Journals
- Books

1.4.2 Phase 2: Empirical study

The empirical study consists of the research design, participants, measuring battery, and statistical analysis.

1.4.2.1 Research Design

For the purposes of this research, a quantitative design from a methodological approach is used. In this approach, the researcher is interested in the development of new methods (such as questionnaires, scales and tests) of data collection and sometimes validating a newly developed instrument through a pilot study (Mouton, 2008).

1.4.2.2 Participants

Convenience sampling (SH-1: $n = 473$; SH-2: $n = 476$) is used since this study does not want to determine the characteristics of a specific occupational group, but wants to test the reliability and validity of a newly developed instrument. Various studies similar to the current study recruited participants generally through universities (*see* Benet & Waller, 1995; Hendriks, Hofstee & de Raad, 1999; Zhang & Akande, 2002). Cheung *et al.* (1996) recruited respondents from different occupational backgrounds through factories, business establishments, schools, women's groups and churches. Di Blas (2005) also recruited respondents that were employees in various occupations.

The current study's participants are recruited from tertiary institutions within North West and Gauteng. During the past years, the research group has built up experience in collecting data among all 11 official languages.

Questionnaires is distributed amongst the participants. Lecturers at the different tertiary institutes are contacted to make necessary arrangements to administer the questionnaires. A letter requesting participation is given to each individual prior to the administration of the measuring instrument. Ethical aspects and a motivation regarding the research is discussed

with the participants before the questionnaires are handed out. The questionnaires is handed to individuals to be completed within a set time and will immediately be collected after completion.

1.4.2.3 Measuring Battery

The objective of this study is to develop a measuring instrument for part of the Soft-heartedness cluster of the SAPI project by generating valid and reliable items for some of its subclusters and to determine if the facets and subfacets confirmed the Soft-heartedness cluster. The Gratefulness, Hostility, and Active Support subclusters of the Soft-heartedness cluster were studied.

In order to develop the instrument, the following steps will be completed:

Step 1: *Consider original responses per facet* – group all the original responses that were attained during the initial phase of the project concerning the Soft-heartedness cluster.

Step 2: (a) *Extract content-representative responses* – examine all the original responses and take out only those that are representative of the facets. (b) *Establishing a definition of the facet* – based on the original responses, generate definitions for all the Soft-heartedness subclusters.

Step 3: *Developing item stems* – based on the facet's definition and the content representative responses, items are generated in a neutral and abstract form.

Step 4: *Final item writing phase* – develop items from both the data and added item stems, and finalise the items for the questionnaire.

After the items for the questionnaire is finalised, these items are divided into two separate Soft-heartedness questionnaires. Two questionnaires is necessary because the Soft-heartedness cluster is the biggest cluster of the SAPI project and if all items are placed into one questionnaire, participants might lose interest and would not complete the questionnaire to the best of their ability.

1.4.2.4 Statistical Analysis

The following analytic techniques will be employed during the quantitative phase:

Data preparation

The data of both questionnaires will be inspected for missing and unexpected values and corrected. The minimum and maximum values, means, standard deviations, skewness and the kurtosis coefficients will be checked to determine plausibility.

Item correlations with total score

A principal component analysis of both sets of items will be performed. These items indicate that they share less than 5% of their variance with the total score. It might be best to be over-inclusive with the analyses and systematically remove the weakest items.

Item correlations with facets

The same procedure to determine the item correlations with the total score will be repeated for the items within the facets of both questionnaires. During the analyses, only items written to represent a particular facet will be selected for the principal component analysis. One component will be retained and the loadings of the items inspected.

Reliability

The descriptive statistics, skewness and kurtosis coefficients, as well as the Cronbach alpha coefficients for the facets of the Soft-heartedness cluster for both versions of the questionnaires will be inspected to determine the reliability of the facets. The calculation of a reliability coefficient will be based on the assumption of unidimensionality within each facet.

Factor analysis

First-order unrestricted analysis: The following techniques will be used to determine the number of factors: (a) eigenvalues > 1 , (b) the scree plot, and (c) parallel analysis.

An oblique rotation method will be employed. The Direct Quartimin is often recommended by factor analysis experts and is the rotation obtained in SPSS version 17 (2009) when a Direct Oblimin rotation is requested and the delta value is left unchanged at zero. An oblique rotation will produce a factor correlation matrix, which in turn can be subjected to a higher-

order factor analysis. Maximum likelihood will be used to analyse the factor structure of the Soft-heartedness cluster.

When inspecting the factor correlation matrix, correlations > 0.20 between all the factors will be expected. If all the factors are correlated with one another, the presence of a higher-order factor is suggested, which allows a second-order factor analysis to be used (using the factor correlation matrix as input).

Second-order factor analysis: A hierarchical Schmid-Leiman factor solution will be used to analyse the second-order factor structures for both questionnaires.

The Schmid-Leiman solution will also used to determine the independent total impact of the Soft-heartedness subclusters, i.e. the variance explained by each subcluster.

Construct equivalence between the white and African groups

To evaluate construct equivalence across different race groups, the factor solutions obtained in the different groups will be used. Similar factor structures would show that the constructs measured by the items are equivalent. Tucker's phi coefficient will be used to determine the equivalence and ranges from zero to one, where a value of one indicates complete congruence and a value of zero indicates a complete lack of congruence.

1.4.2.5 Ethical considerations

Conducting research is an ethical activity. Research ethics provide researchers with a code of moral guidelines on how to conduct research in a morally acceptable way. The following is applicable at all times to remain an ethical climate (Struwig & Stead, 2001):

- The researcher must be skilled and competent to partake in a research study and always uphold the standards of their profession;
- The researcher will attempt not to give the wrong impression or to deceive participants and must at all times be honest, fair and respectful towards others;
- The researcher will at all times have respect for the rights and pride of others. This includes respecting the privacy, confidentiality and autonomy of the research participants. The researcher will also be sensitive to any cultural or individual differences among people,

with relation to such factors as age, gender, race, ethnicity, religion, language and socio-economic status. The researcher will not intentionally discriminate against people in the basis of such factors.

- The wellbeing of others will be a main concern. The researcher will avoid or reduce any harm befalling their research participants as a result of their interaction with them.

1.5 CHAPTER DIVISION

The chapters in this mini-dissertation are presented as follows:

Chapter 1: Introduction and problem statement.

Chapter 2: Research article.

Chapter 3: Conclusions, limitations and recommendations.

1.6 CHAPTER SUMMARY

Chapter 1 raises awareness about the problems with psychometric assessment in South Africa and explains the need that exists for a newly developed psychometric assessment for the cultural diversity of the South African population. In this chapter, the personality models which were used to develop personality tests that measure and classify personality have been discussed, namely the Big Five model, the Big Seven model, the HEXACO model, Eysenck's Giant Three Personality Structure, and the Chinese Personality Assessment Inventory. The relationships between these personality models and some facets of the Soft-heartedness cluster were also investigated. The subclusters (Hostility, Active Support and Gratefulness) were defined and the steps for developing a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster were discussed.

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CHAPTER 2

RESEARCH ARTICLE

DEVELOPING AND VALIDATING A HOSTILITY, GRATEFULNESS AND ACTIVE SUPPORT MEASURING INSTRUMENT

ABSTRACT

This study's objective was to develop a measuring instrument for three of the six subclusters of the Soft-heartedness cluster of the SAPI² project. A quantitative research design was used in this study. The sample consisted of students from tertiary institutions in North West and Gauteng (SH-1: $n = 473$; SH-2: $n = 476$). Convenience sampling was used since this study wanted to test the reliability and validity of a newly developed instrument. Principal components analysis, internal consistency coefficients, and factor analysis were used to analyse the data. Since a higher-order factor was present and a second-order analysis was performed (using the factor correlation matrix as input on the results). From the three subclusters assessed in this study, only two subclusters were extracted, which were labelled Hostility and Congenial Behaviour. The construct equivalence across white and African race groups was evaluated. The results indicated that each of the facets had similar loadings on their posited factors for both race groups and that the factors were represented by the same facets irrespective of the race group. Recommendations were made for future research.

OPSOMMING

Die doelwit van hierdie studie was om 'n meetinstrument te ontwikkel vir drie van die ses subkonstrukte van die Teerhartigheidskonstruk van die SAPI-projek. 'n Kwantitatiewe navorsingsontwerp is gebruik in die studie. Die steekproef het bestaan uit studente van tersiêre instellings in Gauteng en Noordwes (SH-1: $n = 473$; SH-2: $n = 476$). 'n Gerieflikheidssteekproef is gebruik omdat hierdie studie die geldigheid en betroubaarheid van 'n nuwe meetinstrument wou toets. Hoofkomponentanalise, interne konsekwentheidskoëffisiënte, en faktoranalise is gebruik om die data te ontleed. 'n Hoërorddefaktor was teenwoordig en 'n tweede-ordeanalise is uitgevoer. Die faktorkorrelasie-matriks is gebruik as inset op die resultate. Van die drie subkonstrukte

² "The SAPI, an acronym for South African Personality Inventory, is a project that aims to develop an indigenous personality measure for all 11 official languages in South Africa. Participants are Byron Adams (University of Johannesburg and Tilburg University, the Netherlands), Deon de Bruin (University of Johannesburg), Karina de Bruin (University of Johannesburg), Carin Hill (University of Johannesburg), Leon Jackson (North-West University), Deon Meiring (University of Pretoria and University of Stellenbosch), Alewyn Nel (North-West University), Ian Rothmann (North-West University), Michael Temane (North-West University), Velichko Valchev (Tilburg University, the Netherlands), and Fons van de Vijver (North-West University and Tilburg University, the Netherlands)."

wat in die studie getoets is, is twee onttrek, naamlik Vyandigheid en Simpatieke Gedrag. Die konstrugelykwaardigheid oor wit en swart rassegroepe is geëvalueer. Die resultate het aangedui dat elkeen van die fasette gelyksoortige ladings op hul gepostuleerde faktore vir beide rassegroepe toon en dat die faktore verteenwoordig is deur dieselfde fasette ongeag die rassegroep. Aanbevelings is gemaak vir toekomstige navorsing.

In daily life, personality is seen as those personal qualities that makes a person socially popular (Uys, 2007). It should be taken into account that no two people are the same in terms of temperament, behaviour or preference; that individuals behave or act differently in situations; and that although individuals are unique, there is considerable commonality in human behaviour (Murphy & Davidshofer, 2005). Personality can therefore be defined as the regular behavioural patterns, mental characteristics and interpersonal processes originating within the individual (Burger, 2004; Colman, 2003). Furthermore, personality traits are distinctive qualities of an individual and have been defined as a dynamic organisation of psychophysical systems inside a person that create the person's characteristic patterns of behaviour, thought and feelings (Carver & Scheier, 2000; Neill, 2003). Literature suggests that personality traits should be used in the study of personality (Wiggins, 1997; Zuroff, 1986), and that research on personality traits will therefore deal with the fundamental differences and similarities between individuals (Uys, 2007).

The importance of personality to industrial, work, and organisational psychology is evident since significant relations exist between personality variables and criteria such as job satisfaction, supervisory ratings, the development of job-specific criteria, and organisational citizenship (Meiring, Van de Vijver, Rothmann & Barrick, 2005). Psychological assessments represent a systematic approach to enquiring into human behaviour; they are also a way of gaining information about people's personality in a reasonably quick, economical, and objective way (Bedell, van Eeden & van Staden, 1999; Foxcroft & Roodt, 1999). The aim of personality assessment is to identify a person's key personality traits and it can be used for various purposes, namely recruitment, placement, identifying training and development needs, and for performance appraisal of employees (De Beer, 2007; Swanepoel, Erasmus, van Wyk & Schenk, 2003). Psychological assessment has an impact on important decisions, such as making selection and classification decisions which include job placement, college admissions, and clinical assessments of individuals (Murphy & Davidshofer, 2005). When

used in this perspective together with other information, personality assessment results seem to increase decision-making (Uys, 2007).

Since the 1960s, a dispute has been raging in the United States of America on the issue of whether the results of different types of psychological assessments could reasonably be regarded as fair when compared across groups (Abrahams & Mauer, 1999). This dispute is also applicable in the South African context, since members of the previously disadvantaged groups in South Africa suffered similar patterns of inequity as had minority groups in the United States of America (Abrahams & Mauer, 1999). Psychometric testing in South Africa is criticised for mainly focusing on the white minority groups and for being less valid for other cultural groups (Schaap, 2003). According to the Health Professions Council of South Africa (HPCSA, 2006), past apartheid policies had a negative impact on test development in South Africa in that separate tests were designed for different racial categories, with the result that few assessments are available that have been designed and standardised for all South Africans. Given the lack of measures, the practice has arisen of using tests developed for a white, westernised population within other cultural groups and applying the norms with care (Uys, 2007).

The Employment Equity Act has major implications for assessment practitioners in South Africa, since many of the assessments currently in use, whether imported from the United States of America and Europe or developed locally, have not been investigated for bias and cross-cultural validity (Foxcroft & Roodt, 2004). According to Van de Vijver and Rothmann (2004), multicultural assessment became more important in South Africa not long ago and will continue to be widely applied in the future. There is therefore an urgent need for measuring instruments that can be used for all cultural and languages in South Africa and that adhere to the requirements of the Employment Equity Act (Meiring *et al.*, 2005). According to the HPCSA (2006), fair testing practices demand administering tests in the language in which the test-taker is most competent. This is difficult to accomplish at present, since there are not enough psychologists and psychometrists in South Africa who are fluent in the official African languages and sufficient psychometric tests are not available in these official languages (Uys, 2007). The challenge facing psychological assessments is therefore to ensure that various language versions of tests and assessments are available for assessing multilingual South Africans in the language in which they are most comfortable (Foxcroft,

2004). A number of researchers initiated the development of the South African Personality Inventory (SAPI). The aim of the SAPI project is to develop a complete measurement, which will be able to assess personality across the 11 different official languages in South Africa (Nel, 2008).

During the process of instrument development there are important issues that arise, such as the need to meet certain psychometric criteria (Foxcroft, Paterson, Le Roux & Herbst, 2004; Murphy & Davidshofer, 2005). These criteria include that assessments should predict validity, have cross-cultural appropriateness, not be biased, and relevant as well as reliable (Foxcroft *et al.*, 2004). Different authors have different steps, phases or stages for the process of instrument development (see Cheung, Leung, Fan, Song, Zhang & Zhang, 1996; Wilson, 2005). The literature study will discuss two different approaches of instrument development, as well as the phases the SAPI project followed in developing measuring instruments for some of the subclusters of the Soft-heartedness cluster as part of the SAPI.

The first objective of this study was to develop a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster. The second objective was to determine factor structures for the Soft-heartedness cluster (pertaining to these three subclusters); and finally to compare the factor solutions between the race groups respectively.

Instrument development procedures

There are a variety of strategies in instrument development and the choice of method depends on the instrument development philosophies of test authors (Murphy & Davidshofer, 2005). Foxcroft and Roodt (2005) identified six phases for the development of a psychological measure. The first phase is the planning phase in which the aim of the measure is specified, the content of the measure defined and a test plan developed. The planning phase of psychological assessment is often neglected since it is a complex and lengthy process. However, it is especially important when the cultural relevance needs to be considered and test developers need to determine issues, such as the appropriate methods of test administration for certain cultural groups and what language to develop the test in (Foxcroft, 2004). The second phase includes writing and reviewing the items; while the third phase requires the assembling and pre-testing of the experimental version of the measure. This

phase therefore encompasses arranging the items, finalising the item length, answering protocols, developing administration instructions, and pre-testing the experimental version of the measure. Phase four consists of item analysis; item difficulty and discrimination values should be determined and item bias should be investigated. Phase five involves revising and standardising the final version of the measure; test and item content is revised, items are selected for the standardisation version, administration and scoring procedures are revised and standardised, a final version of the measure is compiled which is then administered to a representative sample of the target population. The last phase comprises the technical evaluation and establishing norms together with validity and reliability, devising norm tables, and setting performance standards as well as cut points (Foxcroft & Roodt, 2005).

Another set of authors (Murphy & Davidshofer, 2005) have identified only three stages for the development of a psychological measure. The first stage is test construction that consists of item writing, item content analysis, item response alternatives development, scale construction, determination of response sets and response styles. In this stage the appropriate items are selected and an item pool is generated. Additionally, the item content is checked and the correct types of item response alternatives are chosen. Different types of item response alternatives include a true-false response format, self-concept scale, multiple-choice answer format (5-point Likert scale), as well as an unstructured or free response format. Furthermore attention is given to scale construction. Three important item scaling methods include rational scales, empirical scales, and rational-empirical scales. Lastly, the response sets should be confirmed through the consideration of social desirability, random responding and dissimulation (Murphy & Davidshofer, 2005).

The second stage in Murphy and Davidshofer's (2005) guidelines for test development include norming psychological tests, developing norms, as well as standardisation. During the development of norms attention is paid to ensure that the target population on which the measures are based is relevant and appropriate. Standardisation includes considering test-taking instructions, time limits, scoring procedures, guidelines for scoring interpretations, physical surroundings, the health of examinees and other related variables which can play a role in affecting test scores (Murphy & Davidshofer, 2005). Lastly, the publication and revision of the test are considered, which involves writing the manual and revising the test. The manual contains the outline of the purpose for the test, specifies information for test

administration and scoring, and gives a detailed description of each step in its development. Additional to this last stage is the revision of the test, since it keeps the test current; it is specifically appropriate if measures are very popular and generate a lot of user interest (Murphy & Davidshofer, 2005).

Besides the strategies for instrument development as set out by Foxcroft and Roodt (2005) and Murphy and Davidshofer (2005), there is a variety other approaches that could be followed (see Cheung *et al.*, 1996; Hendriks, Hofstee & de Raad, 1999).

The South African Personality Inventory (SAPI): Development of the Soft-heartedness scale

It has become clear that South Africa has specific needs in respect of psychometric assessment (Foxcroft, 2004). An instrument is required which will be fair in terms of language, culture, values, beliefs, and assumptions, going beyond an instrument merely developed and standardised for the black South African (van Rensburg, 2008). The SAPI project was the response to this need for fair psychometric measures in South Africa.

Foxcroft (2004) states that instrument development includes determining the rationale and purpose for a test and for a targeted population; this was carried out during the planning phase of the SAPI project, when the goal and objective of the project were determined. The goal of the SAPI project was to develop a unique and relevant personality inventory (Nel, 2008); the objective of the study was to determine the implicit personality perspectives of South Africans (Bester, 2006; De Beer, 2007; Fourie, 2006; Grove, 2006; Kilian, 2006, Kruger, 2006; Nopote, 2008; Ntsieni 2006; Swanepoel 2006; Van Rensburg, 2007; Uys, 2007). Furthermore, the planning phase took cognisance of what was required to ensure that the new instrument would be in line with South African legislation. The legislation that was considered included: The South African Constitution, which refers to the basic human rights of equality, and Acts such as the Labour Relations Act (66/1995), Employment Equity Act (58/1998) and Health Professions Act (53/1974) (De Beer, 2007; Kruger, 2006; Ntsieni 2006).

Another aspect of the planning phase included the consideration of the theoretical approach that would be used within the study. The three approaches that are widely used are the etic,

emic and lexical approaches. The terms ‘emic’ and ‘etic’ were developed to differentiate between general, universal classification systems and classification systems specific to a culture or group (Sadalla, Guhathakurta & Ledlow, 2005). The emic-etic issue is central in cross-cultural psychology, where the emic approach is culture-specific and the etic approach means culture-free or universal (Cheung, Conger, Hau, Lew & Lau, 1992). The lexical approach includes both emic and etic aspects (Saucier, 2003). The etic aspect of the lexical approach involves synthesising the results of emic studies in search of recurrent, cross-language patterns; whereas the emic aspect is there to discover the best way of structuring variables reflecting the indigenous patterns of each culture (Saucier, 2003). Saucier & Goldberg (2001) state that in most lexical studies the focus is mainly on a single language, but that this approach affords useful comparisons between languages. In the SAPI project where the lexical approach was used, the lexical approach was modified. Instead of mainly focusing on dictionary definitions, the SAPI team made use of conceptualisations of personality in everyday life or descriptives of people as provided by the South African population (see Nel, 2008).

Next, a research design for the project was considered and planned. With the SAPI project both a qualitative and quantitative research design was used. Within the qualitative research design, researchers performed semi-structured interviews (see van Rensburg, 2008) among the 11 official languages. The aim of this qualitative research design was to gather as many person-descriptive terms as possible and integrating these terms into a personality instrument. The 11 official languages were Afrikaans, English, Ndebele, Xhosa, Zulu, Sepedi, Sesotho, Setswana, Siswati, Tshivenda, and Xitsonga (Nel, 2008). Content analysis was performed to analyse, interpret and reduce personality descriptors (De Beer, 2007). During the interpreting of the gathered person-descriptive terms, all personality-descriptive terms were categorised to personality facets by making use of external resources such as dictionaries and literature as guideline (Nel, 2008). After the categorising, cluster analysis was performed, to group the similar personality facets together and develop an indigenous personality structure (Nel, 2008). During the cluster analysis the following facets were identified, which were common (shared between all languages); semi-common (shared between seven and ten of the eleven languages); semi-specific (specific to only two to six of the 11 languages); as well as language-specific (specific to one language) (Nel, 2008). From the semi-structured interviews 50 000 items were derived; from these items the test authors decided on 9 clusters, 37

subclusters, 191 facets and 550 subfacets. The nine clusters are labelled Extraversion, Soft-Heartedness, Conscientiousness, Emotional Stability, Intellect, Openness, Integrity, Relationship Harmony, and Facilitating (Nel, 2008). The quantitative research design followed the qualitative research design and forms part of the next phase of the SAPI project.

The second phase of the SAPI project was the item-writing phase. Foxcroft (2004) indicates that after the rationale and purpose of the instrument development have been defined, clusters need to be defined and specifications laid down for item writing. During this phase, definitions and items were written from filtered responses collected in the first phase. The filtered responses were obtained from the original response, for example, 'Willing to find solutions for problems' represents a filtered response, which was then rewritten into 'I find solutions to problems' for use as an item within the SAPI. Continuous planning, feedback and quality checking of the data formed part of this phase; this is in accordance with the recommendations of Meiring, Van de Vijver, Rothmann, de Bruin and Foxcroft (2006), where they stated that repeated, interactive quality checks should be carried out and that frequent consultations amongst the research groups were necessary.

The next phase in the SAPI project will be to use the written items to compile preliminary questionnaires for each of the SAPI personality clusters, aiming to create a pool of items from which the best-performing items will be selected to form part of the final personality inventory. Additionally, the test format, with written rules, instructions and procedures for the completion of the test will also be determined. This is in agreement with Foxcroft's (2004) suggestion that the last phase in test development has to specify the administration and scoring methods. A detailed discussion of the second and third phase follows in the method. In the current study, the focus is on the developing of a questionnaire for some of the subclusters of the Soft-heartedness personality cluster of the SAPI.

Soft-heartedness

The Soft-heartedness cluster consists of the Amiability, Egoism, Gratefulness, Hostility, Empathy, and Active Support subclusters (Nel, 2008). The current study will only focus on three of the 6 subclusters, namely Gratefulness, Active Support and Hostility. Soft-heartedness can be defined as a characteristic of persons that relate to others in a positive

manner, by showing kindness, understanding, compassion, and support to others (Meiring, Van de Vijver, Rothmann, de Bruin, Nel & Valchev, 2008). Nel (2008) defines Soft-heartedness as a feeling of concern for the welfare of someone else (especially someone defenceless); low concern for own interests and welfare; and being thankful for others or overall life being. Furthermore, it is an actively expressed feeling of dislike of aggressive behaviour; it denotes a compassionate type of person who is understanding and sensitive towards others' feelings; and a concept of community from sub-Saharan Africa – often summarised as humanity towards others (Nel, 2008).

Nel (2008) recognises Soft-heartedness as the biggest cluster in the SAPI project, with a strong correspondence with the Agreeableness factors of most of the other personality inventories, which include the Big Five, HEXACO and the CPAI. Individuals who score high on the Big Five Agreeableness scale tend to be humane, sympathetic, and glad to help; they also value and show respect for what other people believe (Zhang & Akande, 2002), which agrees with the Soft-heartedness definition of being a compassionate type of person who is understanding and sensitive towards others' feelings (Nel, 2008). Within the six-dimensional HEXACO model (Imperio, Church, Katigbak & Reyes, 2008), the Honesty-Humility, Agreeableness and (to some extent) Emotionality HEXACO factors roughly correspond to rational variants of the Big Five Agreeableness factor; the HEXACO Agreeableness subsumes traits such as tolerance, patience, and gentleness (Ashton, Kibeom, Marcus & de Vries, 2007; Culp, 2006). This relates to the definition of Soft-heartedness that indicates the gentle side of people who care about the welfare of others (Nel, 2008). Lastly, the CPAI factors include Dependability, Interpersonal Relatedness, Social Potency, and Individualism. According to Meiring, Van de Vijver, Rothmann, de Bruin, Nel & Valchev (2008), Social Potency and Interpersonal Relatedness correspond moderately to the Soft-Heartedness cluster. Although the labels are different, these factors are very similar to four of the five factors of the Big Five, namely Neuroticism, Extraversion, Agreeableness, and Conscientiousness (Van de Vijver & van Hemert, 2008).

Definitions of the subclusters (Hostility; Gratefulness and Active Support) of this study follow. Hostility generally relates to anger and aggression and is therefore a representation of the tendency to experience anger and related states such as aggression and frustration (Costa & McCrae, 1992). Literature furthermore describes hostility as a trait that measures the tendency to express bitterness and anger; the inclination to be physically, psychologically or

emotionally aggressive; the enjoyment of beating or fighting with others; and the degradation of others by fighting with or verbally assaulting them (Nel, 2008; Taylor, 2004). Gratefulness can be described as the tendency to express gratitude and appreciation for others or for life in general; as well as an inherent sense of thankfulness and wonder for all the exceptional and united features of life (Nel, 2008; Piedmond, 1999). Lastly, according to Nel (2008), Active Support entails the qualities of being generous, actively involved with the well-being of one's peers and broader community; lending a helping hand when needed; and supporting the less fortunate.

METHOD

Research design

For the purposes of this research, from a methodological approach, a quantitative design was used. In this approach, the researcher was interested in the development of new methods (such as questionnaires, scales and tests) of data collection and validating a newly developed instrument through a pilot study (Mouton, 2008).

Participants and procedure

Convenience sampling was used since the aim of the study was to test the reliability and validity of a newly developed instrument. Convenience sampling is by far the most commonly used type when it comes to personality research (Van de Vijver & Leung, 2000). The sample consisted of students from tertiary institutions in North West and Gauteng (SH-1: $n = 473$; SH-2: $n = 476$).

Permission to administer the questionnaires, as well as ethical clearance, was obtained from the tertiary institutions. Next, lecturers at the institutions were contacted and arrangements made to administer the questionnaires. The goal of the SAPI project was explained to the lecturers. The two options of data collection were also explained to lecturers, giving them the opportunity to choose an option which suited them best. In the first option the questionnaires was distributed during one of the lecturers' classes and the students would be asked to complete the questionnaires in their own time and to bring them back to the following week's class. The second option required the students to complete the questionnaire during class time

and the questionnaire was collected upon completion. During the data gathering, each participant received a consent form requesting participation and explaining the purpose of the study prior to the administration of the measuring instrument. Paper-and-pencil questionnaires with accompanying answer sheets were handed to individuals to be completed. The two versions of the Soft-heartedness questionnaire were randomly distributed amongst participants (*see* measuring battery for more detailed explanation of the two questionnaire versions).

Table 1 presents some of the characteristics of the participants.

Table 1

Background information of the participants (SH-1: n = 473; SH-2: n = 476)

Item	Category	SH-1		SH-2		Total	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Age	18 years	137	29,0	135	28,4	272	28,7
	19 years	119	25,2	123	25,8	242	25,5
	20 years	61	12,9	58	12,2	119	12,6
	21 years	43	9,1	41	8,6	84	8,9
	22 years	31	6,6	30	6,3	61	6,5
	23 years	11	2,3	11	2,3	22	2,3
	Other	71	14,9	78	16	149	15,5
Education	Grade 9	1	1,7	19	4,0	27	2,9
	Grade 12	395	83,5	383	80,5	778	82,0
	Certificate	12	2,5	9	1,9	21	2,2
	Diploma	11	2,3	12	2,5	23	2,4
	Bachelor's	9	1,9	13	2,7	22	2,3
	Master's	2	0,4	1	0,2	3	0,3
	Other	7	1,5	10	2,1	17	1,8
Gender	Male	216	45,7	228	47,9	444	46,8
	Female	251	53,1	242	50,8	493	52,0
English reading ability	Very poor	1	0,2	1	0,2	2	0,2
	Poor	20	4,2	23	4,8	43	4,5
	Good	297	62,8	291	61,1	588	62,0
First language	Very good	136	28,8	144	30,3	280	29,6
	Afrikaans	293	61,9	282	59,2	575	60,6
	English	18	3,8	19	4,0	37	3,9
	IsiNdebele	4	0,8	0	0	4	0,4
	IsiXhosa	10	2,1	11	2,3	21	2,2
	IsiZulu	32	6,8	37	7,8	69	7,3

	Sepedi	44	9,3	38	8,0	82	8,6
	Sesotho	29	6,1	31	6,5	60	6,3
	Setswana	18	3,8	20	4,2	38	4,0
	SiSwati	3	0,6	7	1,5	10	1,1
	Tshivenda	8	1,7	4	0,8	12	1,3
	Xitsonga	9	1,9	17	3,6	26	2,7
	Other	1	0,2	2	0,4	3	0,3
Race	White	278	58,8	272	57,1	550	58,0
	Black	163	34,5	169	35,5	332	35,0
	Indian	3	0,6	1	0,2	4	0,4
	Coloured	22	4,7	18	3,8	840	4,2

Table 1 shows that the total sample (SH-1 and SH-2 combined) consisted of mainly white (58%) and African (35%) students between the ages of 18 and 23 who had completed their Grade 12 with a good (62%) to very good (29,6%) English reading ability. There was a relatively equal gender distribution, with 46,8% males and 52% females. Afrikaans was the highest represented language (60,6%); however, the sum of the African languages also represented a fair amount of the sample (33,9%).

Measuring battery

A self-developed questionnaire was used to measure three of the six subclusters of the Soft-heartedness cluster (as set out in this study) namely Gratefulness, Active Support and Hostility. Gratefulness consisted of two facets (Grateful and Appreciative) and Active Support contained consisted of six facets (Community Involvement, Heedful, Helpful, Protective, Solving problems of Others and Supportive). Hostility originally consisted of 11 facets (Abusive, Aggressive, Critical, Cruel, Delinquent, Denigrating, Exploiting, Intimidating, Trusting, Undermining, and Verbally Aggressive) and primarily relates to negative behaviour. The SAPI collaborators therefore decided to rename the Trusting facet *Distrusting*, in order to shift the focus of the whole subcluster towards the negative. Also, the Gullible facet was originally part of the Relationship Harmony cluster, but after review, it was decided to rather add Gullible as a facet to the Hostility subcluster. Items were developed for each subcluster: Gratefulness (e.g. Appreciative: ‘I value pleasant experiences’; Grateful: ‘I am grateful for what life brings me’), Active Support (e.g. Community Involvement: ‘I solve problems in my community’; Helpful: ‘I help people get through hard times’; Protective: ‘I look after the safety of others’), and Hostility (e.g. Abusive: ‘I treat weaker

people badly'; Aggressive: 'I use force on people'; Delinquent: 'I intentionally do wrong things'; Denigrating: 'I look down on others'). Due to the number of items generated for the total Soft-heartedness cluster (650 items in total), two versions of the Soft-heartedness questionnaire were developed to facilitate the data collection. The researchers were of the opinion that a questionnaire for research purposes that contained 650 items would discourage participants from completing it. Firstly, anchor items were chosen that would appear in both versions of the questionnaire; thereafter the remaining items were randomly divided between the two versions. The SH-1 questionnaire contained 318 items (of which 302 items measured the current study's three clusters and 16 items measured social desirability); the SH-2 questionnaire contained 332 items (of which 317 items measured the current study's three clusters and 15 items measured social desirability). Items were rated on a five-point Likert-type scale, with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

Biographical information was gathered through generic questions included on the answer sheet. These questions referred to participants' age, education, gender, English reading ability, first language and race.

Development of the Soft-heartedness questionnaire

Based on the original responses derived from the qualitative research design performed by researchers via the semi structured interviews (*see* van Rensburg, 2008) amongst eleven different languages, definitions were generated for all the facets relating to the Soft-heartedness cluster (*see* Appendix A). The objective of this study was to develop a measuring instrument for three of the six subclusters from the Soft-heartedness cluster. This was done by generating valid and reliable items for the facets and determining if the facets and subclusters confirmed the Soft-heartedness cluster. The Gratefulness, Hostility and Active Support subclusters of the Soft-heartedness cluster were studied.

Item development included the following steps:

Step 1: *Considering original responses per facet*

All the original responses that were attained in phase 1, the qualitative stage, pertaining to the Soft-heartedness cluster were grouped.

Step 2: Extracting content-representative responses and developing definitions for the various facets

Content-representative responses were extracted from the qualitative research responses which were representative for all different aspects of the meaning of the facet. Extracted content-representative responses included responses that tap different aspects of the meaning of the facets, specify different situations in which facets are expressed, and responses which refer to different objects of the action only if this potentially changed the meaning of the action (e.g. helping one's friends – vs. helping everybody – vs. helping the poor). The response selection was done as a content-focused procedure, not a technical one. The final set of the content-representative responses met the following criteria: a) derived from the raw data; b) implied in the definition; c) covering all aspects of the definition.

Step 3: Developing item stems

Another important aspect was generating item stems. Item stems should be based on content-representative responses, but presented in a more neutral and abstract form.

Certain guidelines were followed for writing items. According to Hendriks *et al.* (1999), items should be written in simple language; in English; in the third person singular; and negations were excluded. Any formulations that were conspiratorial in one way or another were avoided; idiomatic expressions, suggestive formulations ('bosses people around') and sexist or ethnocentric formulations or content are cases in point. Hambleton (1994) suggested that items should avoid idioms and expressions/sayings in order to avoid confusion among the different cultural languages. Additional guidelines were decided upon by the researchers during project discussions. These include the avoidance of double-barrelled questions, items that are too long, temporal qualifiers (e.g. often, always, sometimes, etc.), and the use of psychological trait terms in items whenever possible. Furthermore, items should not refer to certain skills and abilities of individuals, but rather to patterns, inclinations, and to how people tend to behave. Items that describe a single activity, habit or preference should also be used and terms such as like/dislike, unless completely unavoidable, should be avoided. Lastly, items should refer to concrete behaviours, not beliefs, values or orientations.

No existing questionnaire or item pool has been used since there are few questionnaires containing items that satisfy the above criteria.

Step 4: Final item writing phase

This step included the preparation of items to be included in the Soft-heartedness questionnaire. The original Soft-heartedness cluster item pool was reduced to 249 items (84 items for Active Support; 18 items for Gratefulness; 147 items for Hostility).

Statistical analysis

The statistical procedure was the standard procedure that has been followed for all the SAPI clusters (e.g. Relationship Harmony, Intellect, etc.). The SAPI project consists of nine clusters, namely Extraversion, Soft-heartedness, Conscientiousness, Emotional Stability, Intellect, Openness, Integrity, Relationship Harmony, and Facilitating. Each of these clusters was assigned to a person involved in the SAPI project. The Soft-heartedness cluster is the biggest cluster of the SAPI project, and the subclusters were therefore divided between two researchers, so that each cluster could be thoroughly explored.

Data preparation

The data of both questionnaires was inspected for missing values as well as unexpected values in order to correct them. The minimum and maximum values, as well as the means and standard deviations have been checked to determine their plausibility. Items that were lower than 1 or higher than 5 have been corrected. Next, as can be seen in Table 2, the skewness and the kurtosis coefficients of the items from both questionnaires were investigated and items with skewness of > 2 and kurtosis of > 4 were identified. These items were excluded from further analyses since these items would be unsuitable for factor analysis.

Item correlations with total score

A principal component analysis of both sets of items was performed. One component was requested for each set and the component matrixes were inspected to identify any item with a loading of $< 0,20$. These items indicate that they share less than 5% of their variance with the total score. Although criteria that are more stringent could be set with regard to the

component matrix, it might be best to be over-inclusive at this stage of the analysis and then systematically remove the weakest items. Furthermore, the signs within the component loadings will indicate which items need to be reverse-scored.

Item correlations with facets

The same procedure to determine the item correlations with the total score was repeated for the items within the facets of both the questionnaires. During these analyses, only items that were written to represent a particular facet would be selected for the principal component analysis. One component would be retained and the loadings of the items inspected. It was expected that all the items would have relatively large loadings $> 0,30$. However, items with loadings $< 0,20$ have been removed since they served as an early indication that the item did not function as one would expect it to.

Reliability

The descriptive statistics, skewness and kurtosis coefficients, as well as the Cronbach alpha coefficients for the 20 facets of the Soft-heartedness cluster for both versions of the questionnaires were inspected to determine the reliability of the facets. The calculation of a reliability coefficient proceeds on the assumption of unidimensionality within each facet.

Factor analysis

First-order unrestricted analysis: The following techniques were used to determine the number of factors: (a) eigenvalues > 1 , (b) the scree plot, and (c) parallel analysis. Eigenvalue is a common criterion for determining the number of factors to extract; one should remove as many factors as there are eigenvalues > 1 (de Bruin, 2006). The scree test dictates that factors that lie at or below the breakpoint of the graph should be removed (de Bruin, 2006).

Lastly, the underlying principle of parallel analysis is that factors worth retaining should account for more variance than can be ascribed to chance alone (Horn, 1965). A satisfactory solution will make theoretical and psychological sense and will leave little of the common variance of the items unaccounted for.

An oblique rotation method was employed. The Direct Quartimin is often recommended by factor analysis experts and is the rotation obtained in SPSS when a Direct Oblimin rotation is

requested and the delta value is left unchanged at zero. An oblique rotation will produce a factor correlation matrix, which in turn can be subjected to a higher-order factor analysis. Maximum likelihood was used to analyse the factor structure of the Soft-heartedness cluster. The pattern matrices for both questionnaires were inspected to determine whether each of the facets was well defined with loadings $> 0,30$ and that each factor corresponded with one of the hypothesised facets. The retention of additional factors leads to a poor solution with ill-defined factors that are psychologically trivial.

When inspecting the factor correlation matrix it should be expected to find correlations $> 0,20$ between all the factors. Factors that correlate weakly with other factors possibly do not belong in the same cluster. This does not mean that these factors should be discarded, but that they could be placed in another cluster at a later stage. If all the factors are correlated with one another, the presence of a higher-order factor is suggested which allows for a second-order factor analysis to be used (using the factor correlation matrix as input).

Second-order factor analysis: A hierarchical Schmid-Leiman factor solution was used to analyse the second-order factor structures for both questionnaires. The Schmid-Leiman solution is a convenient tool for obtaining the independent influence of first-order and higher-order factors on a set of primary variables and will thus ease the interpretation of factors of differing levels (Wolff & Preising, 2005). The input required are (a) the obliquely rotated factor pattern matrix of the first-order analysis, (b) the second-order factor pattern matrix, and (c) a matrix containing the square roots of the unique variances of each second-order factor on the diagonal and zeros in the off-diagonal cells. A substantive loading on at least one factor will be $> 0,30$ (Wolff & Preising, 2005).

The Schmid-Leiman solution was also used to determine the independent total impact of the Soft-heartedness facets, i.e. the variance explained by each factor. In higher-order factor analysis, the explanatory power of first-order factors is connected to the intercorrelations of primary variables; the explanatory power of higher-level factors refers to the correlation between factors of the adjacent lower level (Wolff & Preising, 2005). First-order factors therefore explain $x\%$ of the correlation between variables, and second-order factors explain $y\%$ of the correlations between first-order factors (Wolff & Preising, 2005). Additionally, in the Schmid-Leiman solution, the variance explained by different levels is partitioned into

non-overlapping contributions; therefore in the Schmid-Leiman solution, each factor explains $z\%$ of the correlation between variables, regardless of factor level (Wolff & Preising, 2005).

Construct equivalence between the race groups

To evaluate construct equivalence across different race groups, the factor solutions obtained in the different groups were used. However only the factor solutions for white and African race groups were used, since the samples of the Coloured and Indian groups were too small to analyse meaningfully. Similar factor structures will show that the constructs measured by the items are equivalent. Firstly, Tucker's phi coefficient was used to determine the equivalence and ranges from zero to one, where a value of one indicates complete congruence and a value of zero indicates a complete lack of congruence. Generally, coefficients of congruence $> 0,95$ point to high levels of construct equivalence, whereas values $< 0,90$ would be indicative that the construct possibly differs in meaning across the different groups. However, the coefficient is insensitive to absolute differences in factor loadings across groups. Hence, a high Tucker's phi can be obtained even though the factor loadings in one group are consistently higher than the loadings of the other group(s). Against this background, the factor pattern matrices of the different groups were also inspected to learn whether the factor loadings were similar in size across the groups.

RESULTS

Descriptive statistics

Descriptive statistics describe the fundamental features of data in a study by considering the means, standard deviations, skewness, kurtosis and component matrix (William, 2006). Rogerson (2005) states that 'skewness measures the degree of asymmetry exhibited by the data', and 'kurtosis measures how peaked the histogram is' (p. 31). Table 2 shows the means, standard deviations, skewness, kurtosis and component matrix of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster. The items were arranged according to the facet to which they belonged.

Item correlations with cluster

A principal components analysis was conducted on both sets of Soft-heartedness questionnaires to determine how well an item represented the content of the Soft-heartedness cluster. These results are also reported in Table 2.

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
GRATEFULNESS											
<i>Appreciative</i>											
i001	4,15	0,85	-1,09	1,54	-0,29	i001	4,09	0,81	-0,87	1,14	-0,34
GRapprSH						GRapprSH					
i002	4,35	0,78	-1,49	3,17	-0,35	i002	4,19	0,83	-1,12	1,78	-0,43
GRapprSH						GRapprSH					
i003	4,48	0,82	-1,95	4,41	-0,29	i003	-	-	-	-	-
GRapprSH						GRapprSH					
i004	4,07	0,87	-1,01	1,28	-0,25	i004	4,15	0,86	-1,21	1,98	-0,32
GRapprSH						GRapprSH					
i005	4,20	0,79	-1,09	1,74	-0,37	i005	-	-	-	-	-
GRapprSH						GRapprSH					
i006	4,10	0,86	-0,89	0,67	-0,33	i006	4,11	0,88	-0,96	0,90	-0,33
GRapprSH						GRapprSH					
i007	4,20	0,83	-1,16	1,81	-0,38	i007	-	-	-	-	-
GRapprSH						GRapprSH					
i008	4,00	0,79	-0,81	1,21	-0,26	i008	-	-	-	-	-
GRapprSH						GRapprSH					
i009	-	-	-	-	-	i009	4,05	0,77	-0,81	1,17	-0,33
GRapprSH						GRapprSH					
i010	-	-	-	-	-	i010	4,04	0,75	-0,65	0,82	-0,33
GRapprSH						GRapprSH					
i011	-	-	-	-	-	i011	4,12	0,81	-0,72	0,22	-0,28
GRapprSH						GRapprSH					
i012	-	-	-	-	-	i012	4,20	0,84	-1,13	1,65	-0,28
GRapprSH						GRapprSH					
<i>Grateful</i>											
i001	4,07	0,86	-1,07	1,44	-0,24	i001	4,05	0,87	-0,86	0,69	-0,32
GRgrateSH						GRgrateSH					
i002	4,14	0,81	-0,99	1,53	-0,31	i002	-	-	-	-	-
GRgrateSH						GRgrateSH					
i003	4,34	0,77	-1,24	1,80	-0,41	i003	-	-	-	-	-
GRgrateSH						GRgrateSH					
i004	4,23	0,82	-1,25	2,15	-0,37	i004	4,19	0,77	-1,13	2,16	-0,39
GRgrateSH						GRgrateSH					

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: $n = 473$; SH-2: $n = 476$)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
i005	-	-	-	-	-	i005	4,34	0,77	-1,22	1,65	-0,37
GRgrateSH						GRgrateSH					
i006	-	-	-	-	-	i006	3,95	0,94	-0,89	0,67	-0,29
GRgrateSH						GRgrateSH					
ACTIVE SUPPORT											
<i>Community Involvement</i>											
i001	3,57	1,04	-0,52	-0,15	<u>-0,10</u>	i001	3,45	1,03	-0,39	-0,45	<u>-0,11</u>
AScominSH						AScominSH					
i002	3,76	0,93	-0,68	0,29	<u>-0,16</u>	i002	3,86	0,87	-0,75	0,64	-0,26
AScominSH						AScominSH					
i003	3,20	1,06	-0,09	-0,49	<u>-0,08</u>	i003	-	-	-	-	-
AScominSH						AScominSH					
i004	3,25	1,06	-0,21	-0,52	<u>0,03</u>	i004	-	-	-	-	-
AScominSH						AScominSH					
i005	3,26	1,11	-0,27	-0,67	<u>-0,07</u>	i005	-	-	-	-	-
AScominSH						AScominSH					
i006	3,48	1,01	-0,41	-0,28	<u>-0,05</u>	i006	3,57	0,90	-0,39	-0,06	<u>-0,12</u>
AScominSH						AScominSH					
i007	3,75	0,90	-0,61	0,36	<u>-0,14</u>	i007	-	-	-	-	-
AScominSH						AScominSH					
i008	3,32	1,02	-0,29	-0,36	<u>-0,09</u>	i008	-	-	-	-	-
AScominSH						AScominSH					
i009	3,66	0,91	-0,60	0,29	<u>-0,10</u>	i009	-	-	-	-	-
AScominSH						AScominSH					
i010	3,71	0,90	-0,65	0,45	<u>-0,17</u>	i010	3,70	0,89	-0,45	0,18	-0,22
AScominSH						AScominSH					
i011	-	-	-	-	-	i011	3,53	0,95	-0,44	-0,04	<u>-0,12</u>
AScominSH						AScominSH					
i012	-	-	-	-	-	i012	3,50	0,90	-0,42	-0,10	<u>-0,15</u>
AScominSH						AScominSH					
i013	-	-	-	-	-	i013	3,45	0,95	-0,38	-0,36	<u>-0,13</u>
AScominSH						AScominSH					
i014	-	-	-	-	-	i014	3,61	0,90	-0,53	-0,01	<u>-0,17</u>
AScominSH						AScominSH					
i015	-	-	-	-	-	i015	3,55	0,89	-0,46	-0,08	<u>-0,14</u>
AScominSH						AScominSH					

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
AScominSH i016	-	-	-	-	-	AScominSH i016	3,69	0,85	-0,58	0,17	-0,21
AScominSH i017	-	-	-	-	-	AScominSH i017	3,50	0,96	-0,26	-0,47	-0,20
AScominSH						AScominSH					
<i>Heedful</i>											
i001	3,88	0,83	-0,70	0,73	-0,26	i001	3,96	0,82	-0,77	0,98	-0,36
ASheedSH i002	3,82	0,91	-0,70	0,47	-0,28	ASheedSH i002	-	-	-	-	-
ASheedSH i003	4,15	0,76	-0,81	1,05	-0,44	ASheedSH i003	-	-	-	-	-
ASheedSH i004	4,07	0,76	-0,71	0,71	-0,37	ASheedSH i004	4,07	0,79	-0,87	1,31	-0,45
ASheedSH i005	3,98	0,85	-0,68	0,44	-0,31	ASheedSH i005	-	-	-	-	-
ASheedSH i006	4,10	0,72	-0,65	0,97	-0,37	ASheedSH i006	-	-	-	-	-
ASheedSH i007	4,07	0,84	-0,90	0,94	-0,37	ASheedSH i007	4,05	0,86	-1,08	1,62	-0,40
ASheedSH i008	-	-	-	-	-	ASheedSH i008	4,13	0,84	-0,99	1,23	-0,32
ASheedSH i009	-	-	-	-	-	ASheedSH i009	4,08	0,83	-0,88	1,17	-0,42
ASheedSH i010	-	-	-	-	-	ASheedSH i010	4,24	0,81	-1,10	1,50	-0,39
ASheedSH i011	-	-	-	-	-	ASheedSH i011	4,13	0,87	-1,10	1,53	-0,40
ASheedSH i012	-	-	-	-	-	ASheedSH i012	4,18	0,78	-0,85	0,81	-0,48
ASheedSH						ASheedSH					
<i>Helpful</i>											
i001	3,98	0,79	-0,78	1,22	-0,34	i001	4,02	0,77	-0,77	1,14	-0,39
AShelpSH i002	3,69	1,11	-0,81	0,07	-0,26	AShelpSH i002	-	-	-	-	-
AShelpSH						AShelpSH					

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
i003	4,10	0,81	-1,05	1,82	-0,35	i003	4,04	0,82	-1,01	1,63	-0,36
AShelpSH						AShelpSH					
i004	3,82	0,95	-0,75	0,44	-0,34	i004	-	-	-	-	-
AShelpSH						AShelpSH					
i005	4,02	1,01	-1,24	1,43	-0,29	i005	-	-	-	-	-
AShelpSH						AShelpSH					
i006	4,02	0,93	-0,96	0,76	-0,28	i006	4,00	0,88	-0,74	0,16	-0,36
AShelpSH						AShelpSH					
i007	3,73	0,87	-0,56	0,45	<u>-0,11</u>	i007	-	-	-	-	-
AShelpSH						AShelpSH					
i008	3,97	0,83	-0,98	1,74	-0,20	i008	-	-	-	-	-
AShelpSH						AShelpSH					
i009	2,14	1,26	0,79	-0,56	0,29	i009	-	-	-	-	-
AShelpSH						AShelpSH					
i010	3,33	0,98	-0,15	-0,43	<u>-0,07</u>	i010	-	-	-	-	-
AShelpSH						AShelpSH					
i011	3,76	0,90	-0,66	0,60	-0,24	i011	-	-	-	-	-
AShelpSH						AShelpSH					
i012	3,14	1,12	-0,26	-0,64	<u>0,09</u>	i012	-	-	-	-	-
AShelpSH						AShelpSH					
i013	3,66	0,84	-0,37	0,17	<u>-0,18</u>	i013	3,84	0,86	-0,50	-0,18	-0,36
AShelpSH						AShelpSH					
i014	3,14	1,06	-0,15	-0,50	<u>-0,06</u>	i014	-	-	-	-	-
AShelpSH						AShelpSH					
i015	-	-	-	-	-	i015	3,98	0,76	-0,66	0,97	-0,34
AShelpSH						AShelpSH					
i016	-	-	-	-	-	i016	3,96	0,82	-0,95	1,73	-0,37
AShelpSH						AShelpSH					
i017	-	-	-	-	-	i017	3,97	0,78	-0,80	1,17	-0,46
AShelpSH						AShelpSH					
i018	-	-	-	-	-	i018	4,00	0,76	-0,77	1,21	-0,44
AShelpSH						AShelpSH					
i019	-	-	-	-	-	i019	3,95	0,76	-0,55	0,71	-0,37
AShelpSH						AShelpSH					
i020	-	-	-	-	-	i020	4,04	0,77	-1,02	2,13	-0,41
AShelpSH						AShelpSH					
i021	-	-	-	-	-	i021	4,14	0,75	-1,01	2,16	-0,37
AShelpSH						AShelpSH					

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
AShelpSH i022	-	-	-	-	-	AShelpSH i022	4,31	0,77	-1,25	2,07	-0,41
AShelpSH i023	-	-	-	-	-	AShelpSH i023	3,89	0,82	-0,56	0,54	-0,31
AShelpSH i024	-	-	-	-	-	AShelpSH i024	3,86	0,87	-0,66	0,58	-0,34
AShelpSH i025	-	-	-	-	-	AShelpSH i025	3,85	0,82	-0,49	0,31	-0,35
AShelpSH	-	-	-	-	-	AShelpSH					
<i>Protective</i>											
i001	3,78	0,83	-0,61	0,65	-0,20	i001	3,84	0,78	-0,50	0,49	-0,33
ASprotSH i002	3,68	0,90	-0,46	0,03	-0,12	ASprotSH i002	-	-	-	-	-
ASprotSH i003	3,78	0,84	-0,62	0,47	-0,21	ASprotSH i003	3,77	0,89	-0,74	0,75	-0,25
ASprotSH i004	3,77	0,88	-0,73	0,70	-0,20	ASprotSH i004	-	-	-	-	-
ASprotSH i005	-	-	-	-	-	ASprotSH i005	3,85	0,81	-0,80	1,26	-0,28
ASprotSH i006	-	-	-	-	-	ASprotSH i006	3,81	0,85	-0,55	0,30	-0,22
ASprotSH i007	-	-	-	-	-	ASprotSH i007	3,81	0,80	-0,60	0,80	-0,23
ASprotSH						ASprotSH					
<i>Solving problems of others</i>											
i001	3,67	0,87	-0,49	0,22	-0,25	i001	3,78	0,81	-0,50	0,43	-0,30
ASprobSH i002	3,72	0,84	-0,46	0,13	-0,20	ASprobSH i002	3,75	0,82	-0,50	0,44	-0,29
ASprobSH i003	3,77	0,83	-0,71	0,86	-0,28	ASprobSH i003	-	-	-	-	-
ASprobSH i004	3,80	0,84	-0,93	1,42	-0,23	ASprobSH i004	-	-	-	-	-
ASprobSH i005	3,73	0,85	-0,55	0,47	-0,28	ASprobSH i005	-	-	-	-	-
ASprobSH i006	3,78	0,86	-0,59	0,38	-0,25	ASprobSH i006	3,69	0,90	-0,84	1,03	-0,26

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: $n = 473$; SH-2: $n = 476$)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
ASprobSH i007	3,85	0,84	-0,73	0,77	-0,24	ASprobSH i007	3,76	0,84	-0,93	1,50	-0,24
ASprobSH i008	3,83	0,83	-0,64	0,64	-0,24	ASprobSH i008	-	-	-	-	-
ASprobSH i009	-	-	-	-	-	ASprobSH i009	3,74	0,80	-0,41	0,35	-0,33
ASprobSH i010	-	-	-	-	-	ASprobSH i010	3,73	0,82	-0,48	0,26	-0,27
ASprobSH i011	-	-	-	-	-	ASprobSH i011	3,75	0,81	-0,67	0,88	-0,33
ASprobSH i012	-	-	-	-	-	ASprobSH i012	3,73	0,79	-0,58	0,99	-0,28
ASprobSH i013	-	-	-	-	-	ASprobSH i013	3,64	0,85	-0,59	0,60	-0,23
ASprobSH	-	-	-	-	-	ASprobSH	-	-	-	-	-
<i>Supportive</i>											
i001	3,95	0,78	-0,91	1,79	-0,27	i001	3,97	0,78	-0,81	1,30	-0,35
ASsuppSH i002	3,99	0,93	-0,80	0,32	-0,30	ASsuppSH i002	-	-	-	-	-
ASsuppSH i003	3,99	0,84	-1,02	1,59	-0,28	ASsuppSH i003	-	-	-	-	-
ASsuppSH i004	3,81	0,94	-0,74	0,51	-0,25	ASsuppSH i004	-	-	-	-	-
ASsuppSH i005	3,37	1,06	-0,28	-0,48	0,04	ASsuppSH i005	3,51	1,08	-0,52	-0,23	-0,10
ASsuppSH i006	3,78	1,04	-0,97	0,62	-0,18	ASsuppSH i006	-	-	-	-	-
ASsuppSH i007	-	-	-	-	-	ASsuppSH i007	3,97	0,84	-1,04	1,83	-0,37
ASsuppSH i008	-	-	-	-	-	ASsuppSH i008	3,91	0,84	-0,88	1,46	-0,38
ASsuppSH i009	-	-	-	-	-	ASsuppSH i009	3,95	0,85	-0,89	1,05	-0,34
ASsuppSH i010	-	-	-	-	-	ASsuppSH i010	3,90	0,87	-0,85	1,10	-0,27
ASsuppSH	-	-	-	-	-	ASsuppSH	-	-	-	-	-

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
HOSTILITY											
<i>Abusive</i>											
i001 HOSabusSH	2,24	1,27	0,69	-0,71	0,57	i001 HOSabusSH	2,22	1,24	0,69	-0,66	0,58
i002 HOSabusSH	2,13	1,22	0,88	-0,26	0,62	i002 HOSabusSH	1,92	1,15	1,11	0,18	0,73
i003 HOSabusSH	1,81	1,13	1,27	0,50	0,65	i003 HOSabusSH	-	-	-	-	-
i004 HOSabusSH	1,82	1,18	1,26	0,38	0,65	i004 HOSabusSH	-	-	-	-	-
i005 HOSabusSH	1,78	1,14	1,29	0,48	0,64	i005 HOSabusSH	1,84	1,14	1,23	0,46	0,69
i006 HOSabusSH	1,92	1,18	1,20	0,41	0,68	i006 HOSabusSH	-	-	-	-	-
i007 HOSabusSH	2,08	1,24	0,82	-0,54	0,60	i007 HOSabusSH	-	-	-	-	-
i008 HOSabusSH	1,79	1,11	1,33	0,81	0,62	i008 HOSabusSH	1,83	1,14	1,28	0,61	0,68
i009 HOSabusSH	1,94	1,18	0,97	-0,31	0,62	i009 HOSabusSH	-	-	-	-	-
i010 HOSabusSH	-	-	-	-	-	i010 HOSabusSH	1,98	1,13	1,01	0,08	0,69
i011 HOSabusSH	-	-	-	-	-	i011 HOSabusSH	2,11	1,14	0,87	-0,07	0,66
i012 HOSabusSH	-	-	-	-	-	i012 HOSabusSH	1,92	1,17	1,12	0,17	0,75
i013 HOSabusSH	-	-	-	-	-	i013 HOSabusSH	1,93	1,12	1,12	0,30	0,75
i014 HOSabusSH	-	-	-	-	-	i014 HOSabusSH	1,79	1,15	1,41	0,94	0,71
<i>Aggressive</i>											
i001 HOSaggrsSH	1,93	1,14	1,06	0,11	0,70	i001 HOSaggrsSH	1,86	1,05	1,16	0,58	0,70
i002 HOSaggrsSH	1,98	1,13	0,96	-0,18	0,66	i002 HOSaggrsSH	1,95	1,12	1,09	0,34	0,69

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
i003 HOSaggrsSH	2,20	1,23	0,67	-0,69	0,68	i003 HOSaggrsSH	-	-	-	-	-
i004 HOSaggrsSH	2,52	1,26	0,37	-1,03	0,58	i004 HOSaggrsSH	-	-	-	-	-
i005 HOSaggrsSH	2,24	1,24	0,62	-0,81	0,68	i005 HOSaggrsSH	-	-	-	-	-
i006 HOSaggrsSH	2,51	1,24	0,32	-1,02	0,63	i006 HOSaggrsSH	2,47	1,26	0,30	-1,12	0,61
i007 HOSaggrsSH	2,11	1,23	0,81	-0,53	0,65	i007 HOSaggrsSH	-	-	-	-	-
i008 HOSaggrsSH	2,19	1,24	0,65	-0,86	0,70	i008 HOSaggrsSH	-	-	-	-	-
i009 HOSaggrsSH	2,39	1,23	0,49	-0,84	0,65	i009 HOSaggrsSH	2,37	1,15	0,37	-0,92	0,65
i010 HOSaggrsSH	2,37	1,24	0,48	-0,90	0,68	i010 HOSaggrsSH	-	-	-	-	-
i011 HOSaggrsSH	-	-	-	-	-	i011 HOSaggrsSH	1,80	1,11	1,34	0,83	0,69
i012 HOSaggrsSH	-	-	-	-	-	i012 HOSaggrsSH	1,83	1,09	1,20	0,54	0,70
i013 HOSaggrsSH	-	-	-	-	-	i013 HOSaggrsSH	2,15	1,28	0,74	-0,74	0,65
i014 HOSaggrsSH	-	-	-	-	-	i014 HOSaggrsSH	2,54	1,31	0,34	-1,07	0,50
i015 HOSaggrsSH	-	-	-	-	-	i015 HOSaggrsSH	1,83	1,16	1,29	0,61	0,68
i016 HOSaggrsSH	-	-	-	-	-	i016 HOSaggrsSH	1,89	1,14	1,18	0,49	0,74
i017 HOSaggrsSH	-	-	-	-	-	i017 HOSaggrsSH	1,93	1,10	1,07	0,31	0,73
						<i>Critical</i>					
i001 HOScritSH	2,45	1,20	0,54	-0,42	0,63	i001 HOScritSH	2,38	1,11	0,44	-0,55	0,64
i002 HOScritSH	2,29	1,17	0,65	-0,49	0,75	i002 HOScritSH	2,07	1,05	0,94	0,44	0,68
i003 HOScritSH	2,26	1,16	0,68	-0,43	0,71	i003 HOScritSH	-	-	-	-	-

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
HOScritSH i004	3,35	1,14	-0,64	-0,38	0,20	HOScritSH i004	3,26	1,12	-0,59	-0,40	0,24
HOScritSH i005	2,46	1,13	0,38	-0,70	0,63	HOScritSH i005	-	-	-	-	-
HOScritSH i006	2,44	1,10	0,45	-0,53	0,63	HOScritSH i006	2,46	1,08	0,43	-0,39	0,60
HOScritSH i007	2,34	1,15	0,57	-0,53	0,60	HOScritSH i007	-	-	-	-	-
HOScritSH i008	-	-	-	-	-	HOScritSH i008	2,44	1,09	0,36	-0,59	0,62
HOScritSH i009	-	-	-	-	-	HOScritSH i009	2,27	1,09	0,64	-0,26	0,68
HOScritSH i010	-	-	-	-	-	HOScritSH i010	2,00	1,05	1,02	0,40	0,75
HOScritSH i011	-	-	-	-	-	HOScritSH i011	2,69	1,19	-0,01	-1,11	0,57
						<i>Cruel</i>					
HOScruelSH i001	1,84	1,11	1,32	0,86	0,74	HOScruelSH i001	1,86	1,07	1,17	0,51	0,78
HOScruelSH i002	1,79	1,12	1,32	0,67	0,75	HOScruelSH i002	1,79	1,05	1,39	1,22	0,76
HOScruelSH i003	1,82	1,11	1,31	0,82	0,73	HOScruelSH i003	-	-	-	-	-
HOScruelSH i004	1,64	1,10	1,66	1,61	0,67	HOScruelSH i004	-	-	-	-	-
HOScruelSH i005	1,56	1,04	1,96	2,94	0,68	HOScruelSH i005	1,69	1,04	1,63	1,92	0,73
HOScruelSH i006	1,62	1,04	1,68	1,84	0,69	HOScruelSH i006	-	-	-	-	-
HOScruelSH i007	1,89	1,12	1,06	0,07	0,68	HOScruelSH i007	1,91	1,07	1,09	0,43	0,74
HOScruelSH i008	-	-	-	-	-	HOScruelSH i008	1,92	1,09	1,16	0,55	0,78
HOScruelSH i009	-	-	-	-	-	HOScruelSH i009	2,26	1,19	0,56	-0,79	0,66
HOScruelSH i010	-	-	-	-	-	HOScruelSH i010	1,81	1,00	1,30	1,26	0,76

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
HOScrueISH i011	-	-	-	-	-	HOScrueISH i011	1,77	1,06	1,38	1,09	0,76
						<i>Delinquent</i>					
i001 HOSdelISH	3,03	1,30	-0,23	-1,12	0,36	i001 HOSdelISH	2,91	1,24	-0,13	-1,06	0,40
i002 HOSdelISH	2,50	1,21	0,32	-0,95	0,58	i002 HOSdelISH	2,41	1,23	0,48	-0,85	0,61
i003 HOSdelISH	2,24	1,20	0,71	-0,47	0,64	i003 HOSdelISH	-	-	-	-	-
i004 HOSdelISH	1,65	1,15	1,82	2,16	0,70	i004 HOSdelISH	-	-	-	-	-
i005 HOSdelISH	2,22	1,37	0,75	-0,80	0,62	i005 HOSdelISH	2,23	1,28	0,66	-0,80	0,63
i006 HOSdelISH	2,17	1,25	0,76	-0,60	0,65	i006 HOSdelISH	-	-	-	-	-
i007 HOSdelISH	1,90	1,18	1,23	0,47	0,78	i007 HOSdelISH	1,92	1,20	1,21	0,42	0,76
i008 HOSdelISH	-	-	-	-	-	i008 HOSdelISH	2,82	1,25	-0,06	-1,12	0,47
i009 HOSdelISH	-	-	-	-	-	i009 HOSdelISH	2,09	1,12	0,91	0,06	0,71
i010 HOSdelISH	-	-	-	-	-	i010 HOSdelISH	2,34	1,22	0,58	-0,74	0,64
i011 HOSdelISH	-	-	-	-	-	i011 HOSdelISH	1,84	1,18	1,25	0,41	0,67
						<i>Denigrating</i>					
i001 HOSdenigSH	1,88	1,09	1,12	0,28	0,77	i001 HOSdenigSH	2,01	1,06	0,99	0,34	0,79
i002 HOSdenigSH	2,17	1,16	0,67	-0,56	0,72	i002 HOSdenigSH	2,29	1,12	0,52	-0,61	0,72
i003 HOSdenigSH	1,89	1,10	1,19	0,59	0,80	i003 HOSdenigSH	-	-	-	-	-
i004 HOSdenigSH	1,84	1,07	1,32	1,04	0,78	i004 HOSdenigSH	-	-	-	-	-
i005 HOSdenigSH	1,94	1,15	1,12	0,29	0,76	i005 HOSdenigSH	-	-	-	-	-

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
HOSdenigSH i006	1,86	1,10	1,31	0,94	0,75	HOSdenigSH i006	-	-	-	-	-
HOSdenigSH i007	1,86	1,11	1,38	1,20	0,78	HOSdenigSH i007	2,02	1,01	0,83	0,06	0,76
HOSdenigSH i008	1,98	1,11	1,04	0,31	0,77	HOSdenigSH i008	-	-	-	-	-
HOSdenigSH i009	2,54	1,28	0,34	-1,05	0,59	HOSdenigSH i009	2,57	1,16	0,15	-1,04	0,61
HOSdenigSH i010	2,24	1,24	0,73	-0,55	0,71	HOSdenigSH i010	-	-	-	-	-
HOSdenigSH i011	-	-	-	-	-	HOSdenigSH i011	2,73	1,28	0,00	-1,26	0,47
HOSdenigSH i012	-	-	-	-	-	HOSdenigSH i012	2,07	1,07	0,85	-0,05	0,75
HOSdenigSH i013	-	-	-	-	-	HOSdenigSH i013	2,54	1,14	0,28	-0,79	0,59
HOSdenigSH i014	-	-	-	-	-	HOSdenigSH i014	2,22	1,10	0,61	-0,47	0,69
HOSdenigSH i015	-	-	-	-	-	HOSdenigSH i015	2,63	1,19	0,16	-1,02	0,58
HOSdenigSH i016	-	-	-	-	-	HOSdenigSH i016	2,12	1,13	0,85	-0,08	0,74
HOSdenigSH i017	-	-	-	-	-	HOSdenigSH i017	2,38	1,18	0,39	-0,95	0,69
						<i>Distrusting</i>					
HOSdistrSH i001	2,44	1,20	0,45	-0,78	0,59	HOSdistrSH i001	2,56	1,15	0,29	-0,77	0,55
HOSdistrSH i002	2,58	1,15	0,27	-0,74	0,56	HOSdistrSH i002	2,56	1,10	0,34	-0,48	0,53
HOSdistrSH i003	2,53	1,09	0,24	-0,75	0,54	HOSdistrSH i003	-	-	-	-	-
HOSdistrSH i004	2,42	1,07	0,44	-0,37	0,55	HOSdistrSH i004	-	-	-	-	-
HOSdistrSH i005	2,85	1,23	-0,02	-1,07	0,44	HOSdistrSH i005	-	-	-	-	-
HOSdistrSH						HOSdistrSH					

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
i006	2,93	1,19	-0,07	-0,91	0,47	i006	2,81	1,18	0,07	-0,91	0,32
HOSdistrSH						HOSdistrSH					
i007	2,81	1,22	0,12	-0,95	0,44	i007	-	-	-	-	-
HOSdistrSH						HOSdistrSH					
i008	2,22	1,13	0,78	-0,15	0,60	i008	2,33	1,12	0,57	-0,50	0,49
HOSdistrSH						HOSdistrSH					
i009	2,44	1,07	0,29	-0,56	0,59	i009	-	-	-	-	-
HOSdistrSH						HOSdistrSH					
i010	-	-	-	-	-	i010	2,47	1,11	0,30	-0,77	0,58
HOSdistrSH						HOSdistrSH					
i011	-	-	-	-	-	i011	2,68	1,08	0,06	-0,72	0,52
HOSdistrSH						HOSdistrSH					
i012	-	-	-	-	-	i012	2,60	1,08	0,19	-0,67	0,54
HOSdistrSH						HOSdistrSH					
i013	-	-	-	-	-	i013	2,49	1,08	0,28	-0,76	0,61
HOSdistrSH						HOSdistrSH					
i014	-	-	-	-	-	i014	2,38	1,03	0,48	-0,34	0,64
HOSdistrSH						HOSdistrSH					
i015	-	-	-	-	-	i015	2,34	1,01	0,43	-0,31	0,61
HOSdistrSH						HOSdistrSH					
<i>Exploiting</i>											
i001	2,14	1,15	0,82	-0,19	0,75	i001	2,05	1,04	0,90	0,14	0,75
HOSexpltSH						HOSexpltSH					
i002	2,18	1,16	0,74	-0,37	0,65	i002	2,14	1,08	0,83	-0,01	0,74
HOSexpltSH						HOSexpltSH					
i003	2,12	1,16	0,82	-0,31	0,74	i003	-	-	-	-	-
HOSexpltSH						HOSexpltSH					
i004	2,30	1,23	0,60	-0,76	0,72	i004	2,39	1,15	0,37	-0,71	0,68
HOSexpltSH						HOSexpltSH					
i005	2,32	1,22	0,54	-0,85	0,72	i005	-	-	-	-	-
HOSexpltSH						HOSexpltSH					
i006	2,32	1,19	0,55	-0,79	0,73	i006	2,22	1,11	0,72	-0,28	0,71
HOSexpltSH						HOSexpltSH					
i007	2,32	1,17	0,58	-0,61	0,69	i007	-	-	-	-	-
HOSexpltSH						HOSexpltSH					

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: $n = 473$; SH-2: $n = 476$)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
i008 HOSexpltSH	2,07	1,08	0,83	-0,12	0,74	i008 HOSexpltSH	-	-	-	-	-
i009 HOSexpltSH	-	-	-	-	-	i009 HOSexpltSH	2,30	1,09	0,46	-0,74	0,69
i010 HOSexpltSH	-	-	-	-	-	i010 HOSexpltSH	1,99	1,07	1,12	0,70	0,77
i011 HOSexpltSH	-	-	-	-	-	i011 HOSexpltSH	2,01	1,03	1,05	0,60	0,74
i012 HOSexpltSH	-	-	-	-	-	i012 HOSexpltSH	2,24	1,08	0,63	-0,35	0,68
i013 HOSexpltSH	-	-	-	-	-	i013 HOSexpltSH	2,32	1,12	0,54	-0,57	0,66
<i>Gullible</i>											
i001 HOSgulSH	2,87	1,00	-0,09	-0,31	0,27	i001 HOSgulSH	2,94	0,96	0,00	-0,14	<u>0,10</u>
i002 HOSgulSH	2,37	1,07	0,39	-0,62	0,44	i002 HOSgulSH	-	-	-	-	-
i003 HOSgulSH	2,69	1,09	0,07	-0,78	0,35	i003 HOSgulSH	2,83	1,08	-0,03	-0,80	<u>0,16</u>
i004 HOSgulSH	2,48	1,06	0,39	-0,51	0,45	i004 HOSgulSH	-	-	-	-	-
i005 HOSgulSH	-	-	-	-	-	i005 HOSgulSH	2,50	1,09	0,33	-0,59	0,42
i006 HOSgulSH	-	-	-	-	-	i006 HOSgulSH	2,93	1,11	-0,03	-0,78	<u>0,15</u>
<i>Intimidating</i>											
i001 HOSintSH	2,36	1,18	0,48	-0,81	0,63	i001 HOSintSH	2,42	1,13	0,34	-0,87	0,64
i002 HOSintSH	2,09	1,15	0,86	-0,18	0,71	i002 HOSintSH	-	-	-	-	-
i003 HOSintSH	1,93	1,10	1,09	0,35	0,74	i003 HOSintSH	2,03	1,09	1,04	0,46	0,75
i004 HOSintSH	1,86	1,07	1,33	1,14	0,72	i004 HOSintSH	-	-	-	-	-
i005 HOSintSH	1,84	1,11	1,34	1,03	0,72	i005 HOSintSH	-	-	-	-	-

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
HOSintSH i006	-	-	-	-	-	HOSintSH i006	2,41	1,15	0,39	-0,79	0,70
HOSintSH i007	-	-	-	-	-	HOSintSH i007	2,46	1,16	0,42	-0,76	0,69
HOSintSH i008	-	-	-	-	-	HOSintSH i008	2,14	1,12	0,90	0,10	0,75
<i>Undermining</i>											
i001 HOSundrmS H	2,33	1,06	0,60	-0,29	0,68	i001 HOSundrmSH	2,34	1,04	0,50	-0,43	0,68
i002 HOSundrmS H	2,22	1,06	0,61	-0,35	0,65	i002 HOSundrmSH	2,21	1,05	0,67	-0,22	0,71
i003 HOSundrmS H	1,94	1,04	1,09	0,53	0,70	i003 HOSundrmSH	-	-	-	-	-
i004 HOSundrmS H	2,08	1,01	0,79	0,08	0,67	i004 HOSundrmSH	-	-	-	-	-
i005 HOSundrmS H	-	-	-	-	-	i005 HOSundrmSH	2,52	0,99	0,29	-0,40	0,56
i006 HOSundrmS H	-	-	-	-	-	i006 HOSundrmSH	2,05	1,04	0,92	0,30	0,70
<i>Verbally Aggressive</i>											
i001 HOSverbSH	2,67	1,19	0,11	-1,04	0,57	i001 HOSverbSH	2,92	1,17	-0,16	-0,91	0,49
i002 HOSverbSH	2,85	1,24	0,07	-0,97	0,45	i002 HOSverbSH	2,87	1,14	0,08	-0,79	0,37
i003 HOSverbSH	2,30	1,15	0,50	-0,71	0,54	i003 HOSverbSH	2,29	1,15	0,59	-0,50	0,53
i004 HOSverbSH	2,23	1,14	0,64	-0,47	0,66	i004 HOSverbSH	-	-	-	-	-
i005 HOSverbSH	2,07	1,04	0,80	-0,02	0,60	i005 HOSverbSH	-	-	-	-	-

Table 2

Descriptive statistics of the 318 items for SH-1 and 332 items for SH-2 of the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

SH-1						SH-2					
Item	Mean	SD	Skewness	Kurtosis	Component Matrix	Item	Mean	SD	Skewness	Kurtosis	Component Matrix
HOSverbSH i006	2,07	1,01	0,82	0,12	0,63	HOSverbSH i006	-	-	-	-	-
HOSverbSH i007	2,27	1,09	0,58	-0,42	0,55	HOSverbSH i007	-	-	-	-	-
HOSverbSH i008	2,66	1,18	0,23	-0,68	0,54	HOSverbSH i008	2,72	1,18	0,14	-0,89	0,51
HOSverbSH i009	2,23	1,07	0,70	-0,13	0,58	HOSverbSH i009	-	-	-	-	-
HOSverbSH i010	1,95	0,99	1,04	0,60	0,60	HOSverbSH i010	-	-	-	-	-
HOSverbSH i011	1,84	1,02	1,27	1,14	0,59	HOSverbSH i011	-	-	-	-	-
HOSverbSH i012	-	-	-	-	-	HOSverbSH i012	2,75	1,15	0,08	-0,89	0,51
HOSverbSH i013	-	-	-	-	-	HOSverbSH i013	2,77	1,14	-0,02	-0,99	0,49
HOSverbSH i014	-	-	-	-	-	HOSverbSH i014	3,06	1,14	-0,27	-0,79	0,42
HOSverbSH i015	-	-	-	-	-	HOSverbSH i015	2,79	1,11	0,05	-0,72	0,53
HOSverbSH i016	-	-	-	-	-	HOSverbSH i016	2,58	1,10	0,35	-0,58	0,53
HOSverbSH i017	-	-	-	-	-	HOSverbSH i017	2,36	1,11	0,53	-0,53	0,66
HOSverbSH i018	-	-	-	-	-	HOSverbSH i018	2,40	1,21	0,47	-0,82	0,66

* Items to be omitted from future analysis are in bold and underlined.

Table 2 indicates the descriptive statistics for the items of the two versions of the Soft-heartedness questionnaire. A normal distribution requires items to have a kurtosis of < 4 and skewness of < 2 . The SH-1 questionnaire produced no items with a high skewness, but 1 item with high kurtosis; the SH-2 questionnaire produced no items with a high skewness and/or kurtosis. The component matrix for the SH-1 questionnaire generated 18 items that did not correlate with the total cluster. Most noteworthy was the items from the Community Involvement facet; none of the items had acceptable component matrices. Table 2 also shows that the SH-2 questionnaire had 11 items that did not correlate with the total cluster, with Gullible producing only one item with an acceptable component matrix.

The principal components analysis was repeated for each of the 20 facets of both the Soft-heartedness clusters to determine the item correlations with the facets (*see* Table 3).

Table 3
Item correlations with facets of the Soft-heartedness cluster
(SH-1: n = 473; SH-2: n = 476)

SH-1		SH-1	
Items	Component Matrix	Items	Component Matrix
GRATEFULNESS		GRATEFULNESS	
<i>Appreciative</i>		<i>Appreciative</i>	
i001GRapprSH	0,66	i001GRapprSH	0,72
i002GRapprSH	0,68	i002GRapprSH	0,74
i004GRapprSH	0,63	i004GRapprSH	0,67
i005GRapprSH	0,70	i005GRapprSH	-
i006GRapprSH	0,78	i006GRapprSH	0,72
i007GRapprSH	0,78	i007GRapprSH	-
i008GRapprSH	0,66	i008GRapprSH	-
i009GRapprSH	-	i009GRapprSH	0,74
i010GRapprSH	-	i010GRapprSH	0,75
i011GRapprSH	-	i011GRapprSH	0,71
i012GRapprSH	-	i012GRapprSH	0,64
<i>Grateful</i>		<i>Grateful</i>	
i001GRgrateSH	0,68	i001GRgrateSH	0,69
i002GRgrateSH	0,81	i002GRgrateSH	-
i003GRgrateSH	0,84	i003GRgrateSH	-
i004GRgrateSH	0,77	i004GRgrateSH	0,80
i005GRgrateSH	-	i005GRgrateSH	0,80
i006GRgrateSH	-	i006GRgrateSH	0,68
ACTIVE SUPPORT		ACTIVE SUPPORT	
<i>Community Involvement*</i>		<i>Community Involvement</i>	
i002AScominSH	**	i002AScominSH	0,72
i010AScominSH	**	i010AScominSH	0,72
i016AScominSH	-	i016AScominSH	0,78
i017AScominSH	-	i017AScominSH	0,79
<i>Heedful</i>		<i>Heedful</i>	

Table 3
 Item correlations with facets of the Soft-heartedness cluster
 (SH-1: n = 473; SH-2: n = 476)

SH-1		SH-1	
Items	Component Matrix	Items	Component Matrix
i001ASheedSH	0,56	i001ASheedSH	0,71
i002ASheedSH	0,58	i002ASheedSH	-
i003ASheedSH	0,79	i003ASheedSH	-
i004ASheedSH	0,81	i004ASheedSH	0,75
i005ASheedSH	0,70	i005ASheedSH	-
i006ASheedSH	0,79	i006ASheedSH	-
i007ASheedSH	0,75	i007ASheedSH	0,72
i008ASheedSH	-	i008ASheedSH	0,77
i009ASheedSH	-	i009ASheedSH	0,82
i010ASheedSH	-	i010ASheedSH	0,80
i011ASheedSH	-	i011ASheedSH	0,78
i012ASheedSH	-	i012ASheedSH	0,78
<i>Helpful</i>		<i>Helpful</i>	
i001AShelpSH	0,63	i001AShelpSH	0,65
i002AShelpSH	0,69	i002AShelpSH	-
i003AShelpSH	0,72	i003AShelpSH	0,57
i004AShelpSH	0,69	i004AShelpSH	-
i005AShelpSH	0,73	i005AShelpSH	-
i006AShelpSH	0,76	i006AShelpSH	0,67
i008AShelpSH	0,59	i008AShelpSH	-
i009AShelpSH	-0,02	i009AShelpSH	-
i011AShelpSH	0,46	i011AShelpSH	-
i013AShelpSH	**	i013AShelpSH	0,69
i015AShelpSH	-	i015AShelpSH	0,70
i016AShelpSH	-	i016AShelpSH	0,70
i017AShelpSH	-	i017AShelpSH	0,74
i018AShelpSH	-	i018AShelpSH	0,76
i019AShelpSH	-	i019AShelpSH	0,67
i020AShelpSH	-	i020AShelpSH	0,66
i021AShelpSH	-	i021AShelpSH	0,66
i022AShelpSH	-	i022AShelpSH	0,61
i023AShelpSH	-	i023AShelpSH	0,65
i024AShelpSH	-	i024AShelpSH	0,65
i025AShelpSH	-	i025AShelpSH	0,70
<i>Protective</i>		<i>Protective</i>	
i001ASprotSH	0,75	i001ASprotSH	0,80
i003ASprotSH	0,84	i003ASprotSH	0,70
i004ASprotSH	0,84	i004ASprotSH	-
i005ASprotSH	-	i005ASprotSH	0,79
i006ASprotSH	-	i006ASprotSH	0,75
i007ASprotSH	-	i007ASprotSH	0,79
<i>Solving Problems of Others</i>		<i>Solving Problems of Others</i>	
i001ASprobSH	0,74	i001ASprobSH	0,72
i002ASprobSH	0,72	i002ASprobSH	0,71
i003ASprobSH	0,78	i003ASprobSH	-
i004ASprobSH	0,65	i004ASprobSH	-
i005ASprobSH	0,77	i005ASprobSH	-
i006ASprobSH	0,78	i006ASprobSH	0,75
i007ASprobSH	0,68	i007ASprobSH	0,59
i008ASprobSH	0,69	i008ASprobSH	-
i009ASprobSH	-	i009ASprobSH	0,66

Table 3
Item correlations with facets of the Soft-heartedness cluster
(SH-1: n = 473; SH-2: n = 476)

SH-1		SH-1	
Items	Component Matrix	Items	Component Matrix
i010ASprobSH	-	i010ASprobSH	0,73
i011ASprobSH	-	i011ASprobSH	0,70
i012ASprobSH	-	i012ASprobSH	0,74
i013ASprobSH	-	i013ASprobSH	0,67
<i>Supportive</i>		<i>Supportive</i>	
i001ASsuppSH	0,68	i001ASsuppSH	0,87
i002ASsuppSH	0,81	i002ASsuppSH	-
i003ASsuppSH	0,79	i003ASsuppSH	-
i004ASsuppSH	0,81	i004ASsuppSH	-
i007ASsuppSH	-	i007ASsuppSH	0,79
i008ASsuppSH	-	i008ASsuppSH	0,87
i009ASsuppSH	-	i009ASsuppSH	0,82
i010ASsuppSH	-	i010ASsuppSH	0,75
HOSTILITY		HOSTILITY	
<i>Abusive</i>		<i>Abusive</i>	
i001HOSabusSH	0,73	i001HOSabusSH	0,72
i002HOSabusSH	0,80	i002HOSabusSH	0,88
i003HOSabusSH	0,88	i003HOSabusSH	-
i004HOSabusSH	0,89	i004HOSabusSH	-
i005HOSabusSH	0,89	i005HOSabusSH	0,85
i006HOSabusSH	0,88	i006HOSabusSH	-
i007HOSabusSH	0,77	i007HOSabusSH	-
i008HOSabusSH	0,80	i008HOSabusSH	0,82
i009HOSabusSH	0,74	i009HOSabusSH	-
i010HOSabusSH	-	i010HOSabusSH	0,85
i011HOSabusSH	-	i011HOSabusSH	0,82
i012HOSabusSH	-	i012HOSabusSH	0,88
i013HOSabusSH	-	i013HOSabusSH	0,89
i014HOSabusSH	-	i014HOSabusSH	0,89
<i>Aggressive</i>		<i>Aggressive</i>	
i001HOSaggrsSH	0,72	i001HOSaggrsSH	0,83
i002HOSaggrsSH	0,72	i002HOSaggrsSH	0,81
i003HOSaggrsSH	0,79	i003HOSaggrsSH	-
i004HOSaggrsSH	0,73	i004HOSaggrsSH	-
i005HOSaggrsSH	0,84	i005HOSaggrsSH	-
i006HOSaggrsSH	0,78	i006HOSaggrsSH	0,69
i007HOSaggrsSH	0,76	i007HOSaggrsSH	-
i008HOSaggrsSH	0,84	i008HOSaggrsSH	-
i009HOSaggrsSH	0,77	i009HOSaggrsSH	0,68
i010HOSaggrsSH	0,76	i010HOSaggrsSH	-
i011HOSaggrsSH	-	i011HOSaggrsSH	0,85
i012HOSaggrsSH	-	i012HOSaggrsSH	0,83
i013HOSaggrsSH	-	i013HOSaggrsSH	0,78
i014HOSaggrsSH	-	i014HOSaggrsSH	0,63
i015HOSaggrsSH	-	i015HOSaggrsSH	0,80
i016HOSaggrsSH	-	i016HOSaggrsSH	0,87
i017HOSaggrsSH	-	i017HOSaggrsSH	0,83
<i>Critical</i>		<i>Critical</i>	
i001HOScritSH	0,76	i001HOScritSH	0,81

Table 3
 Item correlations with facets of the Soft-heartedness cluster
 (SH-1: n = 473; SH-2: n = 476)

SH-1		SH-1	
Items	Component Matrix	Items	Component Matrix
i002HOScritSH	0,81	i002HOScritSH	0,77
i003HOScritSH	0,80	i003HOScritSH	-
i004HOScritSH	0,44	i004HOScritSH	0,52
i005HOScritSH	0,77	i005HOScritSH	-
i006HOScritSH	0,80	i006HOScritSH	0,72
i007HOScritSH	0,75	i007HOScritSH	-
i008HOScritSH	-	i008HOScritSH	0,82
i009HOScritSH	-	i009HOScritSH	0,80
i010HOScritSH	-	i010HOScritSH	0,75
i011HOScritSH	-	i011HOScritSH	0,70
<i>Cruel</i>		<i>Cruel</i>	
i001HOScrueISH	0,87	i001HOScrueISH	0,88
i002HOScrueISH	0,90	i002HOScrueISH	0,90
i003HOScrueISH	0,86	i003HOScrueISH	-
i004HOScrueISH	0,88	i004HOScrueISH	-
i005HOScrueISH	0,85	i005HOScrueISH	0,86
i006HOScrueISH	0,85	i006HOScrueISH	-
i007HOScrueISH	0,74	i007HOScrueISH	0,83
i008HOScrueISH	-	i008HOScrueISH	0,85
i009HOScrueISH	-	i009HOScrueISH	0,71
i010HOScrueISH	-	i010HOScrueISH	0,87
i011HOScrueISH	-	i011HOScrueISH	0,89
<i>Delinquent</i>		<i>Delinquent</i>	
i001HOSdelISH	0,55	i001HOSdelISH	0,66
i002HOSdelISH	0,74	i002HOSdelISH	0,79
i003HOSdelISH	0,76	i003HOSdelISH	-
i004HOSdelISH	0,71	i004HOSdelISH	-
i005HOSdelISH	0,79	i005HOSdelISH	0,78
i006HOSdelISH	0,79	i006HOSdelISH	-
i007HOSdelISH	0,83	i007HOSdelISH	0,76
i008HOSdelISH	-	i008HOSdelISH	0,67
i009HOSdelISH	-	i009HOSdelISH	0,73
i010HOSdelISH	-	i010HOSdelISH	0,81
i011HOSdelISH	-	i011HOSdelISH	0,76
<i>Denigrating</i>		<i>Denigrating</i>	
i001HOSdenigSH	0,82	i001HOSdenigSH	0,80
i002HOSdenigSH	0,80	i002HOSdenigSH	0,85
i003HOSdenigSH	0,89	i003HOSdenigSH	-
i004HOSdenigSH	0,88	i004HOSdenigSH	-
i005HOSdenigSH	0,87	i005HOSdenigSH	-
i006HOSdenigSH	0,86	i006HOSdenigSH	-
i007HOSdenigSH	0,86	i007HOSdenigSH	0,76
i008HOSdenigSH	0,85	i008HOSdenigSH	-
i009HOSdenigSH	0,62	i009HOSdenigSH	0,76
i010HOSdenigSH	0,73	i010HOSdenigSH	-
i011HOSdenigSH	-	i011HOSdenigSH	0,65
i012HOSdenigSH	-	i012HOSdenigSH	0,72
i013HOSdenigSH	-	i013HOSdenigSH	0,73
i014HOSdenigSH	-	i014HOSdenigSH	0,80
i015HOSdenigSH	-	i015HOSdenigSH	0,76

Table 3
Item correlations with facets of the Soft-heartedness cluster
(SH-1: n = 473; SH-2: n = 476)

SH-1		SH-1	
Items	Component Matrix	Items	Component Matrix
i016HOSdenigSH	-	i016HOSdenigSH	0,82
i017HOSdenigSH	-	i017HOSdenigSH	0,83
<i>Distrusting</i>		<i>Distrusting</i>	
i001HOSdistrSH	0,69	i001HOSdistrSH	0,76
i002HOSdistrSH	0,73	i002HOSdistrSH	0,77
i003HOSdistrSH	0,79	i003HOSdistrSH	-
i004HOSdistrSH	0,76	i004HOSdistrSH	-
i005HOSdistrSH	0,74	i005HOSdistrSH	-
i006HOSdistrSH	0,73	i006HOSdistrSH	0,56
i007HOSdistrSH	0,73	i007HOSdistrSH	-
i008HOSdistrSH	0,65	i008HOSdistrSH	0,52
i009HOSdistrSH	0,66	i009HOSdistrSH	-
i010HOSdistrSH	-	i010HOSdistrSH	0,76
i011HOSdistrSH	-	i011HOSdistrSH	0,78
i012HOSdistrSH	-	i012HOSdistrSH	0,83
i013HOSdistrSH	-	i013HOSdistrSH	0,77
i014HOSdistrSH	-	i014HOSdistrSH	0,74
i015HOSdistrSH	-	i015HOSdistrSH	0,75
<i>Exploiting</i>		<i>Exploiting</i>	
i001HOSexpltSH	0,84	i001HOSexpltSH	0,85
i002HOSexpltSH	0,74	i002HOSexpltSH	0,85
i003HOSexpltSH	0,83	i003HOSexpltSH	-
i004HOSexpltSH	0,85	i004HOSexpltSH	0,81
i005HOSexpltSH	0,86	i005HOSexpltSH	-
i006HOSexpltSH	0,84	i006HOSexpltSH	0,81
i007HOSexpltSH	0,81	i007HOSexpltSH	-
i008HOSexpltSH	0,78	i008HOSexpltSH	-
i009HOSexpltSH	-	i009HOSexpltSH	0,79
i010HOSexpltSH	-	i010HOSexpltSH	0,83
i011HOSexpltSH	-	i011HOSexpltSH	0,84
i012HOSexpltSH	-	i012HOSexpltSH	0,82
i013HOSexpltSH	-	i013HOSexpltSH	0,80
<i>Gullible</i>		<i>Gullible*</i>	
i001HOSgulSH	0,75	i001HOSgulSH	**
i002HOSgulSH	0,76	i002HOSgulSH	-
i003HOSgulSH	0,78	i003HOSgulSH	**
i004HOSgulSH	0,78	i004HOSgulSH	-
<i>Intimidating</i>		<i>Intimidating</i>	
i001HOSintSH	0,71	i001HOSintSH	0,83
i002HOSintSH	0,87	i002HOSintSH	-
i003HOSintSH	0,90	i003HOSintSH	0,81
i004HOSintSH	0,88	i004HOSintSH	-
i005HOSintSH	0,84	i005HOSintSH	-
i006HOSintSH	-	i006HOSintSH	0,87
i007HOSintSH	-	i007HOSintSH	0,84
i008HOSintSH	-	i008HOSintSH	0,88
<i>Undermining</i>		<i>Undermining</i>	
i001HOSundrmSH	0,85	i001HOSundrmSH	0,85

Table 3
Item correlations with facets of the Soft-heartedness cluster
(SH-1: n = 473; SH-2: n = 476)

SH-1		SH-1	
Items	Component Matrix	Items	Component Matrix
i002HOSundrmSH	0,85	i002HOSundrmSH	0,86
i003HOSundrmSH	0,85	i003HOSundrmSH	-
i004HOSundrmSH	0,80	i004HOSundrmSH	-
i005HOSundrmSH	-	i005HOSundrmSH	0,79
i006HOSundrmSH	-	i006HOSundrmSH	0,84
<i>Verbally Aggressive</i>		<i>Verbally Aggressive</i>	
i001HOSverbSH	0,70	i001HOSverbSH	0,78
i002HOSverbSH	0,66	i002HOSverbSH	0,64
i003HOSverbSH	0,71	i003HOSverbSH	0,68
i004HOSverbSH	0,76	i004HOSverbSH	-
i005HOSverbSH	0,80	i005HOSverbSH	-
i006HOSverbSH	0,80	i006HOSverbSH	-
i007HOSverbSH	0,70	i007HOSverbSH	-
i008HOSverbSH	0,76	i008HOSverbSH	0,75
i009HOSverbSH	0,73	i009HOSverbSH	-
i010HOSverbSH	0,73	i010HOSverbSH	-
i011HOSverbSH	0,66	i011HOSverbSH	-
i012HOSverbSH	-	i012HOSverbSH	0,76
i013HOSverbSH	-	i013HOSverbSH	0,80
i014HOSverbSH	-	i014HOSverbSH	0,73
i015HOSverbSH	-	i015HOSverbSH	0,75
i016HOSverbSH	-	i016HOSverbSH	0,69
i017HOSverbSH	-	i017HOSverbSH	0,70
i018HOSverbSH	-	i018HOSverbSH	0,78

* There are no or only one case(s) therefore the correlation coefficients could not be computed for the variable

** Deleted items as result of correlation matrix < 0,2 during item correlation with cluster analysis

– Item not included in questionnaire

Items with loadings < 0,20 were removed since they served as an early indication that the item did not function as was expected. No correlation matrix could be computed for the Community Involvement facet (SH-1) since all its items were removed during the previous phase of item elimination. Additionally, the results indicated that the remaining items from the Gullible (SH-2) facet and i009 from the Helpful facet (SH-1) had low item loadings and were accordingly removed as well. All remaining items had an acceptable loading if the guideline of > 0,3 is considered; therefore, these items were used during the analysis that followed.

Reliability

The internal consistency coefficients were calculated for each facet for the two versions of the Soft-heartedness cluster. The calculation of a reliability coefficient proceeds on the assumption of unidimensionality within each facet. The results are presented in Table 4.

Table 4

Descriptive statistics, skewness, kurtosis and Cronbach alpha coefficients of the facets of the two versions of the Soft-heartedness questionnaire (SH-1: n = 473; SH-2: n = 476)

Item	SH-1					SH-2				
	Mean	SD	Skewness	Kurtosis	α	Mean	SD	Skewness	Kurtosis	α
Appreciative	29,07	4,03	-0,75	1,10	0,82	32,95	4,64	-0,52	0,08	0,86
Grateful	16,78	2,52	-0,89	1,41	0,78	16,52	2,49	-0,72	0,89	0,72
Community Involvement	28,06	4,02	-0,49	0,48	-	14,75	2,70	-0,37	0,17	0,75
Heedful	31,36	4,87	-0,45	0,52	0,83	32,82	5,06	-0,70	0,68	0,90
Helpful	11,33	2,07	-0,55	0,90	0,81	59,85	8,06	-0,22	-0,06	0,91
Solving problems of Others	30,15	4,93	-0,40	0,93	0,87	19,08	3,15	-0,19	0,07	0,87
Protective	15,75	2,70	-0,77	1,18	0,74	33,58	5,18	-0,37	0,73	0,82
Supportive	17,51	8,71	1,03	0,10	0,77	19,69	3,43	-0,73	1,41	0,88
Abusive	22,43	9,40	0,48	-0,80	0,94	17,54	8,76	1,01	0,10	0,95
Aggressive	17,58	5,92	0,35	-0,27	0,92	22,62	9,95	0,86	0,07	0,93
Critical	12,17	6,51	1,39	0,96	0,86	19,57	6,48	0,16	-0,21	0,88
Cruel	15,71	6,41	0,73	-0,07	0,94	15,00	7,25	1,16	0,74	0,94
Delinquent	20,21	9,30	0,92	0,07	0,86	18,56	7,24	0,49	-0,28	0,89
Denigrating	23,22	7,46	0,03	-0,49	0,94	25,56	9,58	0,26	-0,55	0,93
Exploiting	17,76	7,67	0,50	-0,70	0,93	25,24	7,90	0,04	-0,21	0,94
Intimidating	10,08	4,70	0,90	0,20	0,89	19,66	8,03	0,59	-0,20	0,90
Distrusting	10,42	3,25	0,09	-0,19	0,88	2,50	1,09	0,33	-0,59	0,90
Gullible	8,56	3,49	0,73	0,26	0,77	11,45	4,77	0,52	-0,46	-
Undermining	25,14	8,84	0,46	-0,21	0,86	9,12	3,43	0,50	-0,21	0,85
Verbally Aggressive	29,07	4,03	-0,75	1,10	0,91	29,50	9,21	-0,02	-0,39	0,91

According to the results in Table 4, there was no indication of a high skewness and/or kurtosis for either SH-1 or SH-2, indicating that the facets are distributed evenly. The reliability coefficients of most of the facets for both SH-1 and SH-2 were all satisfactory according to the 0,70 guideline of Nunnally and Bernstein (1994). A reliability score of 0,95 should be considered when essential decisions are made based on specific test scores of individuals (*see* Nunnally & Bernstein, 1994). Reliabilities for Community Involvement (SH-1) and Gullible (SH-2) could not be calculated, since there were no items left in these facets in order to do an analysis.

Factor analysis

A principal axis factor analysis with a Direct Quartimin rotation was performed. The following techniques were used to determine the number of factors to be extracted: (a) eigenvalues (> 1), (b) the scree plot and (c) parallel analysis. Maximum likelihood was used to analyse the factor structure of the two versions of the Soft-heartedness cluster. The results based on the eigenvalues of the intercorrelation matrix are presented in Table 5.

Table 5

Eigenvalues of the intercorrelation matrix for the Soft-heartedness cluster (SH-1: $n = 473$; SH-2: $n = 476$)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings Total
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
SH-1							
1	8,87	46,67	46,67	8,45	44,49	44,49	8,16
2	3,45	18,14	64,82	3,07	16,18	60,68	4,73
3	1,00	5,25	70,07				
4	0,73	3,83	73,90				
5	0,64	3,38	77,28				
6	0,61	3,19	80,47				
7	0,45	2,37	82,84				
8	0,42	2,19	85,03				
9	0,40	2,11	87,14				
10	0,37	1,93	89,08				
11	0,31	1,64	90,71				
12	0,30	1,58	92,29				
13	0,27	1,43	93,72				
14	0,26	1,38	95,10				
15	0,25	1,32	96,42				
16	0,24	1,29	97,71				
17	0,18	0,92	98,63				
18	0,14	0,71	99,34				
19	0,12	0,66	100,00				
SH-2							
1	9,16	45,82	45,82	8,76	43,82	43,82	8,25
2	3,73	18,63	64,45	3,43	17,14	60,97	5,40
3	1,03	5,15	69,60	0,65	3,23	64,20	1,54
4	0,87	4,34	73,94				
5	0,67	3,37	77,31				
6	0,58	2,92	80,24				
7	0,47	2,36	82,60				
8	0,44	2,22	84,82				
9	0,39	1,96	86,78				
10	0,38	1,90	88,68				
11	0,37	1,84	90,52				

Table 5

Eigenvalues of the intercorrelation matrix for the Soft-heartedness cluster (SH-1: n = 473; SH-2: n = 476)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings Total
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
12	0,30	1,48	92,00				
13	0,29	1,43	93,43				
14	0,26	1,28	94,71				
15	0,23	1,16	95,87				
16	0,22	1,09	96,96				
17	0,18	0,92	97,88				
18	0,16	0,78	98,67				
19	0,14	0,69	99,36				
20	0,13	0,64	100,00				

In Table 5 it is indicated that for SH-1 only two eigenvalues were > 1 , proposing that two factors should be extracted. The two factors for SH-1 explain 64,82% of the variance of the data. The results for SH-2 showed that three eigenvalues were > 1 , suggesting three factors should be extracted. The three factors for SH-2 shared 69,69% of variance

The results of the parallel analysis of the reduced intercorrelation matrix for SH-1 showed that two eigenvalues of the sample data were greater than the eigenvalues of the parallel random data. This suggests that two factors should be retained (*see* Figure 1). Furthermore, Figure 1 also revealed a clear break after the fourth root of the sample data; therefore the scree plot also suggests that two factors should be retained.

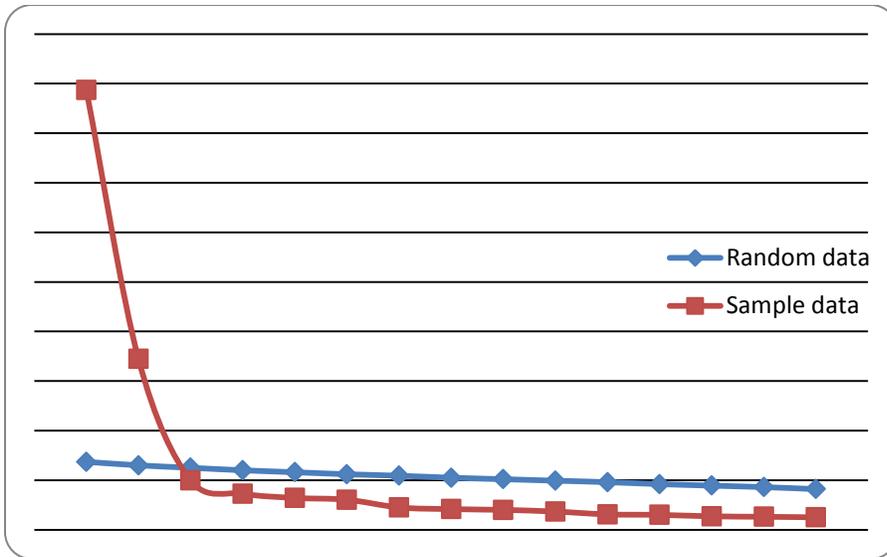


Figure 1. Scree plot and parallel analysis for the SH-1 version of the Soft-heartedness cluster.

For SH-2, the results of the parallel analysis of the reduced intercorrelation matrix showed that two eigenvalues of the sample data were greater than the eigenvalues of the parallel random data. This suggests that two factors should be retained (*see* Figure 2). The scree plot also suggests that two factors should be retained since Figure 2 showed a clear break after the third root of the sample data.

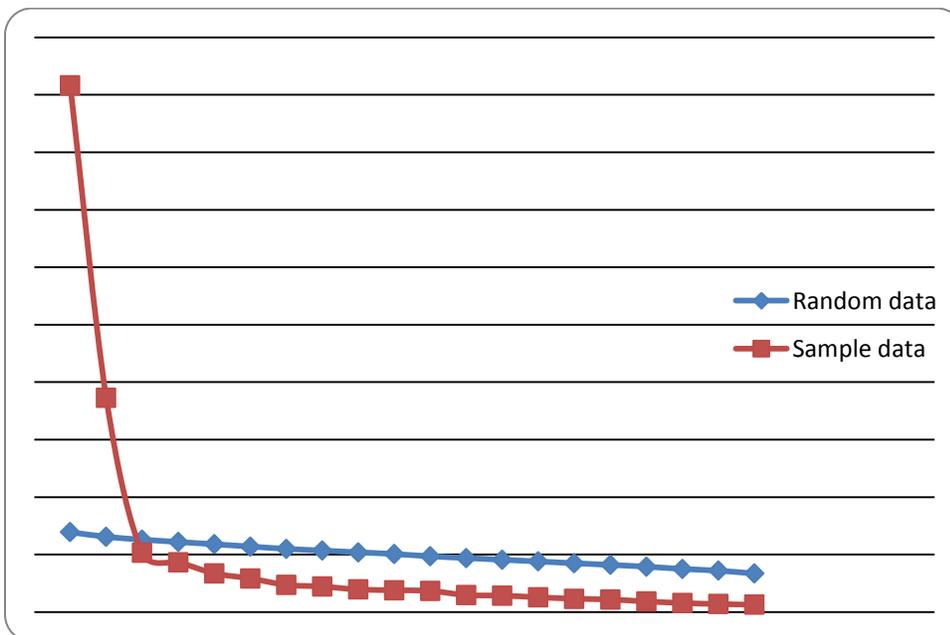


Figure 2. Scree plot and parallel analysis for the SH-2 version of the Soft-heartedness cluster.

Because the main indication from the eigenvalue-based analyses was two factors, only two factors were retained for SH-1. The results for the factor pattern matrix of SH-1 are presented in Table 6.

Table 6
Oblique factor pattern matrix of the 19 facets of the Soft-heartedness cluster from SH-1 (n = 473)

SH-1	Factor 1	Factor 2
Appreciative	-0,07	<u>0,74</u>
Grateful	-0,06	<u>0,73</u>
Heedful	-0,09	<u>0,74</u>
Helpful	-0,08	<u>0,68</u>
Protective	0,12	<u>0,72</u>
Solving Problems of Others	0,07	<u>0,80</u>
Supportive	0,00	<u>0,70</u>
Abusive	<u>0,69</u>	-0,07
Aggressive	<u>0,82</u>	-0,04
Critical	<u>0,81</u>	0,01
Cruel	<u>0,75</u>	-0,11
Delinquent	<u>0,88</u>	0,05
Denigrating	<u>0,90</u>	-0,05
Distrusting	<u>0,73</u>	-0,01
Exploiting	<u>0,92</u>	0,03
Intimidating	<u>0,86</u>	0,01
Gullible	<u>0,54</u>	0,09
Undermining	<u>0,80</u>	-0,03
Verbally Aggressive	<u>0,76</u>	-0,03

Factor pattern coefficients > 0,30 are in bold and underlined,

The results indicate that each factor within the SH-1 questionnaire was well determined with at least three factor pattern coefficients > 0,30. Factor 1 is represented by the items Abusive, Aggressive, Critical, Cruel, Delinquent, Denigrating, Exploiting, Intimidating, Gullible, Undermining and Verbally Aggressive and factor 2 was represented by the items Appreciative, Grateful, Heedful, Helpful, Protective, Solving Problems of Others and Supportive. The primary factor pattern coefficients ranged between 0,54 (Gullible on factor 1) and 0,92 (Exploiting on factor 1).

The factor pattern matrix results for SH-2 are displayed in Table 7.

Table 7
Oblique factor pattern matrix of the 20 facets of the Soft-heartedness cluster from SH-2 (n = 476)

SH-2	Factor 1	Factor 2
Appreciative	-0,02	<u>0,77</u>
Grateful	-0,08	<u>0,66</u>
Community Involvement	0,03	<u>0,56</u>
Heedful	-0,10	<u>0,73</u>
Helpful	-0,06	<u>0,86</u>
Protective	0,08	<u>0,75</u>
Solving Problems of Others	0,02	<u>0,74</u>
Supportive	0,02	<u>0,75</u>
Abusive	<u>0,74</u>	-0,11
Aggressive	<u>0,83</u>	-0,03
Critical	<u>0,83</u>	0,02
Cruel	<u>0,82</u>	-0,11
Delinquent	<u>0,88</u>	0,07
Denigrating	<u>0,91</u>	0,03
Distrusting	<u>0,78</u>	0,05
Exploiting	<u>0,90</u>	0,02
Gullible	<u>0,38</u>	-0,08
Intimidating	<u>0,88</u>	0,02
Undermining	<u>0,75</u>	-0,10
Verbally Aggressive	<u>0,79</u>	0,12

All factor pattern coefficients > 0,30 are in bold and underlined,

Table 7 shows that the pattern structure of SH-2 is the same as that of SH-1. Both factors are well defined with twelve factor pattern coefficients > 0,30 for factor 1 and eight factor pattern coefficients > 0,30 for factor 2. The facets representing Factor 1 include Abusive, Aggressive, Critical, Cruel, Delinquent, Denigrating, Distrusting, Exploiting, Gullible, Intimidating, Undermining and Verbally Aggressive; while Appreciative, Grateful, Community Involvement, Heedful, Helpful, Protective, Solving Problems of Others and Supportive represent the second factor. The primary factor pattern coefficients ranged between 0,38 (Gullible on factor 1) and 0,91 (Denigrating on factor 1).

The factor correlation matrix (*see* Table 8) indicates that all both factors of SH-1 are significantly correlated with each other (medium effect). Similarly, the factors of SH-2 are also significantly correlated with each other (medium effect).

Table 8

Intercorrelations of the first order factors of the Soft-heartedness cluster from (SH-1: n = 473; SH-2: n = 476)

Factor SH-1	1	2
1	1,00	-0,36 ⁺⁺
2	-0,33 ⁺⁺	1,00

Note, Correlations below the diagonal are for SH-1, Correlations above the diagonal are for SH-2

** Correlation is practically significant, $r > 0,30$ (medium effect)

These results suggest the presence of a higher-order factor (as expected). Since a higher-order factor seems to be present, a second-order analysis will be performed, using the factor correlation matrix as input.

The solutions for both questionnaires were altered to an orthogonal Schmid-Leiman (1957) hierarchical factor solution. A single second-order factor and two group or primary factors were produced for both SH-1 and SH-2 and all the factors at hierarchical levels were uncorrelated (*see* Tables 9 and 10).

Table 9

Hierarchical Schmid-Leiman factor solution for the 19 facets of the Soft-heartedness cluster (SH-1: $n = 473$)

Facets	Soft-heartedness (higher-order factor)	Factor 1	Factor 2	h^2
Heedful	<u>-0,68</u>	-0,05	<u>0,43</u>	0,65
Appreciative	<u>-0,66</u>	-0,04	<u>0,43</u>	0,62
Grateful	<u>-0,64</u>	-0,03	<u>0,43</u>	0,60
Helpful	<u>-0,62</u>	-0,05	<u>0,39</u>	0,54
Solving Problems of Others	<u>-0,59</u>	0,04	<u>0,46</u>	0,56
Supportive	<u>-0,57</u>	0,00	<u>0,41</u>	0,49
Protective	<u>-0,49</u>	0,07	<u>0,42</u>	0,42
Gullible	<u>0,37</u>	<u>0,31</u>	0,05	0,24
Distrusting	<u>0,60</u>	<u>0,42</u>	0,00	0,54
Abusive	<u>0,62</u>	<u>0,40</u>	-0,04	0,55
Critical	<u>0,65</u>	<u>0,47</u>	0,01	0,65
Verbally Aggressive	<u>0,65</u>	<u>0,44</u>	-0,02	0,62
Delinquent	<u>0,67</u>	<u>0,51</u>	0,03	0,72
Undermining	<u>0,67</u>	<u>0,46</u>	-0,01	0,67
Intimidating	<u>0,69</u>	<u>0,50</u>	0,01	0,73
Aggressive	<u>0,70</u>	<u>0,47</u>	-0,02	0,71
Cruel	<u>0,70</u>	<u>0,44</u>	-0,06	0,69
Exploiting	<u>0,72</u>	<u>0,53</u>	0,02	0,80
Denigrating	<u>0,77</u>	<u>0,52</u>	-0,03	0,87
% shared variance	67%	22%	11%	

Factor pattern coefficients that define the factor corresponding to a particular column are underlined and in bold.

Table 9 indicates that the Schmid-Leiman transformation produced a well-defined second-order factor and two weaker defined group factors. These 19 facets had their highest factor pattern coefficient on the second-order factor, and all these coefficients ranged between 0,49 and 0,77. The two group factors were less clearly defined. Inspection of the items that loaded on the two

group factors suggests that the factors might be labelled Hostility (which includes Abusive, Aggressive, Critical, Cruel, Delinquent, Denigrating, Distrusting, Exploiting, Intimidating, Gullible, Undermining and Verbally Aggressive), and Congenial Behaviour (which includes Appreciative, Grateful, Heedful, Helpful, Protective, Solving problems of others and Supportive). If the higher-order factor is considered, it can be seen that, if people obtain a low score on the Soft-heartedness they would possibly display Heedful (-0,68), Appreciative (-0,66), and Grateful (-0,64) behaviour, while, if they obtain a high score, their behaviour would be characterised by being Denigrating (0,77), Exploiting (0,72) and Cruel (0,70).

The second-order factor accounted for 67% of the shared variance of the 19 facets, whereas the two subclusters accounted for only 22% and 11%, respectively. This result shows that responses to the items of SH-1 are dominated by the general cluster and that in comparison the subclusters have a relatively minor influence.

Table 10

Hierarchical Schmid-Leiman factor solution for the 20 facets of the Soft-heartedness cluster (SH-2: n = 476)

Facets	Soft-heartedness (higher-order factor)	Factor 1	Factor 2	h^2
Helpful	<u>-0,76</u>	-0,03	<u>0,49</u>	0,81
Heedful	<u>-0,68</u>	-0,05	<u>0,42</u>	0,64
Appreciative	<u>-0,65</u>	-0,01	<u>0,43</u>	0,60
Grateful	<u>-0,61</u>	-0,05	<u>0,37</u>	0,52
Supportive	<u>-0,60</u>	0,01	<u>0,43</u>	0,55
Solving problems of others	<u>-0,59</u>	0,01	<u>0,42</u>	0,53
Protective	<u>-0,55</u>	0,05	<u>0,43</u>	0,49
Community involvement	<u>-0,44</u>	0,02	<u>0,32</u>	0,29
Gullible	<u>0,37</u>	0,21	-0,04	0,19
Verbally Aggressive	<u>0,55</u>	<u>0,45</u>	0,07	0,50
Distrusting	<u>0,60</u>	<u>0,44</u>	0,03	0,56
Critical	<u>0,66</u>	<u>0,47</u>	0,01	0,66
Delinquent	<u>0,67</u>	<u>0,50</u>	0,04	0,70
Abusive	<u>0,70</u>	<u>0,42</u>	-0,06	0,67
Intimidating	<u>0,70</u>	<u>0,50</u>	0,01	0,74
Undermining	<u>0,70</u>	<u>0,42</u>	-0,05	0,67
Aggressive	<u>0,71</u>	<u>0,47</u>	-0,02	0,72
Denigrating	<u>0,72</u>	<u>0,52</u>	0,02	0,79
Exploiting	<u>0,73</u>	<u>0,51</u>	0,01	0,78
Cruel	<u>0,77</u>	<u>0,46</u>	-0,06	0,81
% shared variance	68%	20%	11%	

Factor pattern coefficients that define the factor corresponding to a particular column are underlined and in bold

The results obtained in SH-2 are very similar to the results obtained in SH-1. Table 10 indicates that the Schmid-Leiman transformation produced a well-defined second-order factor and two moderate to weakly defined subclusters. These 20 facets had their highest factor pattern coefficient on the second-order factor, and all these coefficients ranged between 0,37 and 0,77. Gullible had the lowest coefficient (0,37), and could be removed from the 20 facets of the Soft-heartedness cluster, but is kept to function as a characteristic of this cluster as was theoretically determined. Inspection of the items that loaded on the two group factors suggest that the factors might be labelled Hostility (which includes Abusive, Aggressive, Critical, Cruel, Delinquent, Denigrating, Distrusting, Exploiting, Intimidating, Undermining and Verbally Aggressive), and Congenial Behaviour (items Appreciative, Grateful, Community Involvement, Heedful, Helpful, Protective, Solving Problems of Others and Supportive). If the higher-order factor is considered, it can be seen that, if people obtain a low score on the Soft-heartedness they would possibly display Helpful (-0,76), Heedful (-0,68), and Appreciative (-0,65) behaviour, while, if they obtain a high score, their behaviour would be characterised by being Cruel (0,77), Exploiting (0,73), and Denigrating (0,72).

The Soft-heartedness cluster accounted for 68% of the shared variance, and the two group factors for 20% and 11%, respectively. This result is very similar to that of SH-1 obtained in Table 9 and shows that the influence of the cluster is large relative to the influence of the subclusters.

The construct equivalence across different race groups was evaluated by considering Tucker's phi coefficient (*see* Table 11) and comparing the factor pattern matrices of the two factors obtained in both SH-1 and SH-2 for the different groups (*see* Tables 12 and 13).

Table 11

Tucker's phi results for the factor pattern matrices of the two factors obtained in both SH-1 and SH-2 for the different groups, namely white (n =550) and African (n =332)

	Factor 1	Factor 2
SH-1	0,99	0,98
SH-2	0,99	0,97

The study used Tucker's phi (a factor congruence coefficient) to investigate the factorial similarity of the different groups, to make meaningful comparisons between groups. Values > 0,90 were found in Table 11 for the two groups across both versions of the questionnaire, indicating very strong structural equivalence. It therefore seems that the different factors manifest almost identically across the two data sets. The factor pattern matrices of the two factors across the two groups confirm this finding.

Table 12
Factor pattern matrices for the white (n =279) and African groups (n=163) for the two factor solution of SH-1

	Factor 1		Factor 2	
	White	African	White	African
Appreciative	-0,08	0,03	<u>0,79</u>	<u>0,68</u>
Grateful	-0,06	-0,06	<u>0,73</u>	<u>0,73</u>
Heedful	-0,12	-0,09	<u>0,75</u>	<u>0,74</u>
Helpful	-0,11	-0,01	<u>0,66</u>	<u>0,69</u>
Protective	0,07	0,12	<u>0,67</u>	<u>0,70</u>
Solving Problems of Others	0,09	-0,04	<u>0,79</u>	<u>0,79</u>
Supportive	-0,01	0,02	<u>0,73</u>	<u>0,64</u>
Abusive	<u>0,57</u>	<u>0,76</u>	-0,21	0,02
Aggressive	<u>0,78</u>	<u>0,82</u>	-0,10	-0,02
Critical	<u>0,82</u>	<u>0,77</u>	-0,01	0,10
Cruel	<u>0,70</u>	<u>0,77</u>	-0,20	-0,07
Delinquent	<u>0,89</u>	<u>0,83</u>	0,03	0,08
Denigrating	<u>0,88</u>	<u>0,90</u>	-0,08	-0,07
Distrusting	<u>0,72</u>	<u>0,75</u>	-0,03	0,03
Exploiting	<u>0,92</u>	<u>0,90</u>	0,05	0,01
Intimidating	<u>0,86</u>	<u>0,81</u>	-0,05	0,04
Gullible	<u>0,55</u>	<u>0,61</u>	0,18	-0,03
Undermining	<u>0,81</u>	<u>0,77</u>	0,00	-0,06
Verbally Aggressive	<u>0,80</u>	<u>0,75</u>	-0,06	-0,03

Factor pattern coefficients > 0,30 are in bold and underlined.

The factor pattern matrix for SH-1 (Table 12) showed that each of the facets had similar loadings on their posited factors for both groups and that the factors were represented by the same facets irrespective of the race group.

Table 13
Factor pattern matrices for the White (n =272) and African groups (n=169) for the two factor solution of SH-2

	Factor 1		Factor 2	
	White	African	White	African
Appreciative	-0,01	0,04	<u>0,79</u>	<u>0,72</u>
Grateful	-0,10	-0,05	<u>0,69</u>	<u>0,57</u>
Community Involvement	0,04	-0,07	<u>0,56</u>	<u>0,57</u>

Heedful	-0,07	-0,14	<u>0,76</u>	<u>0,68</u>
Helpful	-0,02	-0,10	<u>0,91</u>	<u>0,77</u>
Protective	0,05	0,13	<u>0,78</u>	<u>0,71</u>
Solving Problems of Others	-0,05	0,10	<u>0,72</u>	<u>0,77</u>
Supportive	0,04	0,01	<u>0,80</u>	<u>0,70</u>
Abusive	<u>0,69</u>	<u>0,76</u>	-0,27	0,07
Aggressive	<u>0,83</u>	<u>0,79</u>	-0,09	0,07
Critical	<u>0,85</u>	<u>0,74</u>	0,00	0,08
Cruel	<u>0,79</u>	<u>0,83</u>	-0,15	-0,09
Delinquent	<u>0,89</u>	<u>0,86</u>	0,08	0,01
Denigrating	<u>0,90</u>	<u>0,92</u>	0,05	-0,03
Distrusting	<u>0,79</u>	<u>0,75</u>	0,09	-0,06
Exploiting	<u>0,88</u>	<u>0,91</u>	-0,01	0,04
Gullible	<u>0,31</u>	<u>0,48</u>	-0,07	-0,15
Intimidating	<u>0,88</u>	<u>0,86</u>	0,03	-0,05
Undermining	<u>0,71</u>	<u>0,80</u>	-0,14	-0,05
Verbally Aggressive	<u>0,76</u>	<u>0,82</u>	0,15	0,06

Factor pattern coefficients > 0,30 are in bold and underlined.

According to Table 13, each of the facets had similar loadings on their posited factors for both groups and the factors were represented by the same facets irrespective of the race group.

DISCUSSION

The objectives of this study were firstly to develop a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster. Secondly, this study wanted to determine factor structures for the Soft-heartedness cluster, and finally to compare the factor solutions between the race groups respectively.

In order to achieve the first objective, items that did not function as expected were identified and removed. For the first version of the Soft-heartedness questionnaire (SH-1), 22 items of the original 318 were removed. These items were found in the following facets: Community Involvement (12 items, e.g. ‘I am a respected member of my community’); Helpful (7 items, e.g. ‘I take over work from others when they have too much work to do’); Protective (1 item, ‘I accompany people who need protection to the places they are going to’); and Supportive (2 items, e.g. ‘If a close person is ill and I cannot visit, I send messages’). Altogether, 13 items from

the original 332 items for the second version of the Soft-heartedness questionnaire (SH-2) were removed. These items represented the following facets: Community Involvement (7 items, e.g. ‘I discuss different questions about my community’); Supportive (1 item, ‘I support people close to me no matter if they are right or wrong’); and Gullible (5 items, e.g. ‘I am easily impressed’).

Considering face validity, certain assumptions can be made as to why these items did not perform as expected. Firstly, the Community Involvement and Gullible facets had the most problematic items, indicating first that these facets do not represent the cluster Soft-heartedness as defined by the original three subclusters included in this study. Besides these facets not being appropriate representations of the Soft-heartedness cluster, the removed items in themselves could have been misunderstood by participants, or the meaning of the items might not have been clear to all participants. This is evident in the work of Raymond Cattell. Cattell (1943, as cited by Taylor, In search of the basic dimensions of personality, Cattell focused purely on the stable traits and removed items that seemed vague, were obsolete, or were of a figurative nature).

Next, the reliabilities of the facets were determined. The reliability scores of all the facets were satisfactory if it comply with the 0.70 guideline of Nunnally and Bernstein (1994). Reliabilities for Community Involvement (SH-1) and Gullible (SH-2) could not be calculated, since there were no items left in these items for analysis. The reliability of a test is studied to establish and estimate the magnitude of the errors of measurement that might affect it (Koocher & Keith-Spiegel, 1990). It was noticed that the facets with the lower reliabilities were the facets that had items that were removed. All these results assisted in the obtaining the first objective of this study, since the remaining items proved to be valid and reliable.

The next objective of this study was addressed by firstly determining the number of factors to extract. The three eigenvalue-based criteria indicated that for both SH-1 and SH-2, two factors should be extracted. Two well-defined factors for both versions of the Soft-heartedness questionnaire were subsequently extracted and identified as Hostility and Congenial Behaviour. The facet content of the Hostility subcluster remained the same as was originally specified by Nel (2008), therefore the definition of this subcluster will also remain the same. Hostility can be

defined as a characteristic of someone who is cruel towards others, abusing them physically and emotionally; being violent, short-tempered and discouraging; as well as aggressive, inconsiderate and harsh. Furthermore, hostile behaviour includes being critical and insulting towards others, being outspoken, looking for the weaknesses in other people, bullying others, and being dominating, as well as using corrosive language, vulgar words, and an abusive form of speech.

Congenial Behaviour can be defined as a characteristic of someone that expresses appreciation, acceptance and love; someone who is available to help and who shows sympathy and pity in times of need. Furthermore, it is also a characteristic of someone who inspires others, being concerned about and looking after others, as well as giving assistance without expecting anything in return. This is contrary to the initial findings of Nel (2008), where the same facets were used as in this study and which differentiated between two subclusters, Gratefulness and Active Support. A possible explanation could be that at this stage of the analysis, the positive and the negative items are clustering in two separate groups, one indicating positive behaviour and the other negative behaviour. This is especially evident since all the facets contained in the Hostility subcluster denote only negative behaviour, while all the facets with a positive preference were included in the second subcluster, Congenial Behaviour. Smith (2003) noted that using a combination of positive and negative statements would lessen agreement and disagreement, because it encourages respondents to consider the meaning of items more closely and therefore give more meaningful responses.

Following these analyses was the consideration of the factor correlation matrix, which indicated that all both factors of SH-1 and SH-2 are significantly correlated with each other with a medium effect. These results suggest the presence of a higher-order factor. Given that a higher-order factor was present, a second-order analysis was performed, using the factor correlation matrix as input. A second-order factor analysis with a hierarchical Schmid-Leiman (1957) transformation provided further insights into the Soft-heartedness factor structure and subsequently allowed for easier interpretation of the factors, and for determining the independent impact of the factors (*see* Wolff & Preising, 2005). The results indicated that the second-order factor accounted for a relatively high percentage of the shared variance of the facets, whereas the two subclusters

accounted for only a small percentage respectively. This result shows that responses to the items of both SH-1 and SH-2 are dominated by the general cluster and that in comparison the subclusters have a relatively minor influence, pointing towards a general Soft-heartedness cluster. It could therefore be statistically preferable to compute one general Soft-heartedness than two separate scores (Hostility and Congenial Behaviour).

If a hierarchical Schmid-Leiman factor solution for both SH-1 as well as SH-2 is considered, it is seen that all facets loaded $> 0,3$ on the general Soft-heartedness cluster. The results of SH-2 (Table 10) indicate that the Schmid-Leiman transformation produced a well-defined second-order factor, therefore all facets were included to form part of the Soft-heartedness cluster. Although Gullible loaded on the general Soft-heartedness cluster, it did not load $< 0,3$ on either of the two subclusters. The subcluster Hostility was defined as someone who is cruel towards others, as well as abusing them physically and emotionally; being violent, short-tempered and discouraging; and aggressive, inconsiderate and harsh. Furthermore, hostile behaviour includes being critical and insulting towards others, being outspoken, looking for the weaknesses in other people, bullying others, and being dominating, as well as using corrosive language, vulgar words, and an abusive form of speech. Gullible was defined as someone who is easily persuaded and influenced by others, who believes, relies on and trusts other people easily. Considering this definition, it could be assumed that being gullible is not necessarily an indication of Hostile behaviour; however, it is not an indication of Congenial Behaviour either. Gullible is more related to a trust relationship with others, whereas Congenial Behaviour is a characteristic of someone that expresses appreciation, acceptance and love; someone who is available to help and who shows sympathy and pity in times of need. Given that there are three other subclusters of Soft-heartedness (Amiability, Egoism and Empathy) that were not included in this specific study, and that Gullible seems to be a relative representation of Soft-heartedness, it might belong to one of those subclusters. Gullible should therefore, for the time being, be kept as a facet within Soft-heartedness until an all-inclusive analysis of the Soft-heartedness cluster can be done. In the preceding research, Gullible was a term which it was suggested should not be used. Meiring *et al.* (2005) concluded that the usefulness of the 15FQ+ was limited, and a revision of items was needed for some items to be better understood (e.g. the use of the word 'gullible' should be

avoided). According to the research of Taylor (2000), this finding is in line with studies done on the 16PF and the NEO PI-R.

Finally, the last objective of this study was to compare the factor solutions of the race groups respectively. The samples of the Coloured and Indian race groups were too small to analyse meaningfully, therefore only the factor solutions for white and African race groups were used. The factor structures for the white and African groups were identical, each subcluster containing the same facets for each of the two groups and the two groups had a similar pattern of high and low factor loadings. This indicates that the items for these subclusters are equivalent and nothing would therefore be gained from using separate factor analyses for the two groups, even though there might be a difference in the factor loadings of the two groups.

In conclusion, valid and reliable measuring items were developed for the originally theorised three subclusters of the Soft-heartedness cluster, namely Hostility, Gratefulness and Active Support. However, the results revealed that only two factors could be legitimately extracted and were named Hostility and Congenial Behaviour; indicating a merging of the positive and negative facets into two subclusters. Further analyses of the results indicated that it would be preferable to compute a total score for the general Soft-heartedness cluster, rather than two separate scores for the two subclusters. Lastly, comparing the factor solutions between white and African race groups revealed the items to be equivalent across groups.

Despite the positive results, the study was not without limitations. Firstly, only students represented the sample group. The sample group did not represent any other participants than students of the African population; in terms of race and language, more black participants and speakers of the official African languages could have been included. Another limitation was the fact that the overall cluster was split into two studies, limiting the transference of items and facets such as the Gullible facet to more appropriate subclusters.

Recommendations

Recommendations for future research would include investigating the item properties of the Soft-heartedness cluster using the Rasch Model in order to identify possible sources of differential

item functioning. Another recommendation would be to include all the original Soft-heartedness facets in future studies; this might curb the clustering of the subclusters into the positive and negative poles. No recommendations for the organisational context are being made because this instrument is still in its developmental phase, and not yet ready to be applied in an organisational setting.

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Appendix A

Response-derived definitions of the 20 facets of the Soft-heartedness cluster

Subcluster	Facet	Definition
Gratefulness	Grateful	Expressing thankfulness and gratitude. Commending others on work well done. Enjoying, being grateful and satisfied with what you have.
	Appreciative	Expressing appreciation, acceptance and love. Liking, adoring, enjoying, and being fond of objects, persons, and/or situations in general.
Active Support	Community Involvement	Taking interest in, caring for, or serving the community or its development; gaining respect by being a role model for the community.
	Heedful	Being caring and willing to listening. Being an attentive listener who shows interest and helps finding solutions for problems. Paying attention, showing patience and being respectful.
	Helpful	Being available and having pity in times of need or when others experiences problems. Inspiring others and being willing to give assistance without expecting anything in return. Being encouraging and motivating.
	Protective	Providing security and defending others. Being concerned about others and looking after them.
	Solving Problems of Others	Identifying problems and proposing solutions. Discussing problems and giving advice.
	Supportive	Supporting and counselling others in difficult times. Confiding in one another and making time for each other. Encouraging, and comforting others. Accompanying others, (and) being willing and available to give support. Providing a strong shoulder.
	Hostility	Abusive
Aggressive		Being violent, short-tempered and discouraging. Being aggressive, inconsiderate and harsh. Being disrespectful and easily annoyed.
Critical		Being critical and insulting towards others and opposing to others' lifestyle. Being outspoken, and looking for the weaknesses in others.
Cruel		Being nasty, ruthless and vindictive towards others. Teasing, gossiping, mocking, and laughing at others. Being jealous, evil-hearted and having no humanity and mercy
Delinquent		Intentionally behaving badly. Being untrustworthy sly and stealing. Pretending to be good, but being out of control, being wild and bullying others.
Denigrating		Hurting the confidence of others. Belittling, humiliating, demeaning, and ridiculing others. Bullying and putting others down.
Exploiting		Taking advantage of others, abusing privileges, and misusing opportunities
Intimidating		Making others feel unworthy, terrified and uncomfortable. Being frightening, scary, and undermining.
Distrusting		Not showing confidence in others and questioning the behaviour or genuineness of others as well as being suspicion. Not believing in, relying on and putting your trust in others and being sceptical.
Gullible		Being provocative, unhelpful, unkind, and suppressing others. Deforming others' character.
Verbally Aggressive	Using verbally abusive and hurtful language, also shouting at people	

CHAPTER 3

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

The purpose of this chapter is to draw a conclusion from the research article that formed part of this study. Conclusions are drawn in accordance with the research objectives formulated in the article chapter. The limitations of this study will also be discussed and recommendations for further research are made.

3.1 CONCLUSION

The objectives of this study were firstly to develop a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster. Secondly, this study wanted to determine factor structures for the Soft-heartedness cluster (pertaining to these three subclusters), and finally to compare the factor solutions between the race groups respectively.

Personality assessments used in South Africa are not indigenous since many of these assessments are developed abroad, and exported to other countries such as South Africa (De Beer, 2007). These tests are often unsuitable and not standardised for use in South Africa with its diverse cultural groups (Foxcroft, Paterson, le Roux & Herbst, 2004; Taylor, 2004). Post-apartheid legislation dictates the use of only valid, reliable, fair and unbiased psychological instruments. However, there is a limited number of assessments available that have been developed and standardised for the South African population and would adhere to these laws (*see* Taylor, 2004). Many assessments in South Africa are mainly standardised for white South Africans, with few or no tests available for those South African citizens who cannot speak English or Afrikaans (Foxcroft, 2004; Van Rensburg, 2008).

The first objective of this study was to develop a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster. A principal components analysis was performed on both sets of Soft-

heartedness questionnaires to determine how well an item represented the content of the Soft-heartedness cluster. Items that did not function as expected were identified and deleted from the two versions of the Soft-heartedness questionnaires. For the first version of the Soft-heartedness questionnaire (SH-1), 22 items of the original 318 were removed; and 13 items of the original 332 items for the second version of the Soft-heartedness questionnaire (SH-2) were removed. The problematic items were found in the following facets: Community Involvement, Helpful, Protective, Supportive, and Gullible. Considering face validity, assumptions could be made about why these items did not function as expected. Face validity is where items are deemed valid just by looking at them (Koocher & Keith-Spiegel, 1990). It might be that respondents misunderstood the meaning of these items or that the wording of these items was objectionable and should be revised. Gullible was one of the facets that had the most problematic items. The SAPI collaborators added the Gullible facet to the Hostility subcluster, because it was thought it would be best represented in a negative subcluster. If the definition for Gullible is considered, namely ‘someone who is easily persuaded and influenced by others, they believe, rely and trust other people easily’, it could be assumed that being gullible is not necessarily an indication of Hostile behaviour. This strengthens the motivation for why this facet did not function as expected.

Valid and reliable measuring items were developed for the original theorised three subclusters of the Soft-heartedness cluster, namely Hostility, Gratefulness and Active Support since the alpha coefficients for the facets fell comfortably above the 0,70 minimum for recommended reliabilities set out by Nunnally and Bernstein (1994). The facets which did not function as expected were the ones with lower reliabilities.

The second objective of this study was to determine factor structures for the Soft-heartedness cluster; more specifically, confirming the existence of the three theorised subclusters, namely Gratefulness, Active Support and Hostility. The number of factors to be extracted was determined by factor analysis. Principal axis factor analysis with a Direct Quartimin rotation was performed on the results of the study. Three techniques were used to determine the number of factors to be extracted, namely eigenvalues (> 1), the scree plot and parallel analysis. The results

indicated that two well-defined factors for both versions of the Soft-heartedness questionnaire could be extracted and these were labelled Hostility and Congenial Behaviour. Two of the three subclusters, namely Active Support and Gratefulness, grouped together and were renamed Congenial Behaviour. If this grouping together of subclusters, the fact that only two subclusters remained and the definitions of these two subclusters are considered, it is evident that the one subcluster, 'Congenial Behaviour', relates to positive behaviour and the other subcluster, 'Hostility', relates to negative behaviour.

Hostility was again defined as a characteristic of someone who is cruel towards others, as well as abusing him or her physically and emotionally; being violent, short-tempered and discouraging; being aggressive, inconsiderate and harsh. Furthermore, hostile behaviour includes being critical and insulting towards others, being outspoken, looking for the weaknesses in other people, bullying others, and being dominating, as well as using corrosive language, vulgar words, and an abusive form of speech. With the Hostility cluster in this study trusting was changed to distrusting and Gullible was added to the cluster. Congenial Behaviour was defined as a characteristic of someone that expresses appreciation, acceptance and love; someone who is available to help and who shows sympathy and pity in times of need. Furthermore, it is also a characteristic of someone who inspires others, is concerned about and looks after others, as well as giving assistance without expecting anything in return. Where Congenial Behaviour does not fully comply with the original definition stated by Nel (2008), this is because the two subclusters Active Support and Gratefulness were grouped together in this study and formed Congenial Behaviour. The two subclusters were defined by Nel (2008) as Active Support – 'The quality of being generous and actively involved with the wellbeing of one's peers and broader community; lending a helping hand when needed, and supporting the less-fortunate.' and Gratefulness – 'The tendency to express gratitude and appreciation for others or for life in general'. These two definitions in some aspects still correspond with the definitions of Nel (2008).

Second-order factors have been used in various other personality instruments. For instance, Cattell developed the Sixteen Personality Factor Questionnaire with the second-order factors (Nel, 2008). Fiske (1971) and Norman (1967) reanalysed Cattell's results and found affirmation

for five of the second-order factors, which are now known as the Big Five. The presence of a higher-order factor was evident in this study; therefore, a second-order analysis was performed, using the factor correlation matrix as input. According to Yung, Thissen & Mcleod (1999, p.113), 'Schmid and Leiman (1957) propose a transformation for deriving hierarchical factor solutions from higher-order factor solutions with simple factor clusters structure.' A second-order factor analysis with a hierarchical Schmid-Leiman (1957) transformation was performed and showed that for both Soft-heartedness questionnaires all facets loaded on the general Soft-heartedness cluster. The results of the SH-2 questionnaire indicated a well-defined second-order factor was produced and all facets were to be included to form part of the general Soft-heartedness cluster. Gullible loaded on the general Soft-heartedness cluster, and will therefore form part of the Soft-heartedness cluster, although it did not load on either of the two subclusters. It is important to focus on the scores of both Hostility and Congenial Behaviour, before a total score for the Soft-heartedness cluster is determined. Although all facets of the two subclusters loaded on the Soft-heartedness cluster, the separate scores of the subcluster are an indication of facets that are problematic or might be problematic in future research.

The third objective of this study was to compare factor solutions between race groups. Factor solutions are compared between different race groups in order to identify facets that manifest differently, or have a different meaning for the different race groups (Taylor, 2004). According to Goldberg & Somer (2000), comparisons between factor structures derived from different languages are limited by the differences in the selection of variables from the different lexicons. In pairs of languages where indigenous factor structures seem to differ considerably, it is unclear whether the difference reflects something of cultural significance or whether it is simply an artefact (Goldberg & Somer, 2000). However, when the factor structures for the white and African race groups were compared they were found to be equivalent. Because the factor structures of the white and African race groups when compared indicated a similar pattern of high and low factor loadings, the factor loadings of the race groups delivered equivalent results. Therefore, the facets which remained does not manifest differently, and do not indicate different meanings for the different race groups.

In conclusion, performing principal components analysis and considering face validity, the items which did not function as expected on both sets of Soft-heartedness questionnaires were removed and examined to determine why these items did not function as expected. After principal components analysis was performed it was evident that the remaining items complied with the first objective of this study, which was to develop a valid and reliable measuring instrument that scientifically assesses the Hostility, Gratefulness and Active Support subclusters of the Soft-heartedness cluster. Reliabilities for the facets were determined and delivered results above the 0,7 guideline set out by Nunnally and Bernstein (1994).

Principal axis factor analysis with a Direct Quartimin rotation was performed on the results of the study to determine factor structures for the Soft-heartedness cluster. Two well-defined factors for both versions of the Soft-heartedness questionnaire were extracted and labelled: Hostility and Congenial Behaviour. A second-order analysis was also performed on the results. A well-defined second-order factor was produced and all facets were to be included to form part of the general Soft-heartedness cluster.

Factor solutions between race groups were determined, the results were found to be equivalent, therefore there is no difference in meanings for the two race groups

3.2 LIMITATIONS

Despite the positive results, the study was not without limitations. Firstly, the sample group was not 100% representative of all languages in terms of race. Although the various race groups were moderately well represented, there could have been a better representation of these groups. According to Statistics South Africa (20 July 2010), the South African population consists of 79,4% African, 9,2% white, 8,8% Coloured, and 2,6% Indian people. Although the majority of the population consist of African and white people, Indian and Coloured people should also be taken into consideration. It is therefore important to include a representative sample of each group into research studies, which includes the Coloured and Indian populations of South Africa.

According to Woods & Hampson (2005, p. 373), ‘The growing consensus about personality structure has increased the demand for personality assessment in a wide variety of research, including studies where lengthy measures are impractical.’ The researchers kept this in mind during the development of the questionnaires, and since the number of generated items for the total Soft-heartedness cluster (650 items in total) was large, two versions of the Soft-heartedness questionnaire were developed to facilitate with the data collection. Even though shorter assessments encourage participation from candidates who are generally expected to give their time for no reward (*see* Woods & Hampson, 2005), producing two versions of the original questionnaire proved a limitation to this study; it limited the depth of conclusions that could be reached about the functioning of the items.

A third limitation pertains to splitting the study of Soft-heartedness according to subclusters. The overall Soft-heartedness cluster has six subclusters, namely Amiability, Egoism, Gratefulness, Hostility, Empathy and Active Support. This study only focussed on three of these six subclusters, subsequently limiting the transference of items and facets such as the Gullible facet to more appropriate subclusters within the Soft-heartedness cluster.

Another limitation could be that this study only made use of tertiary students and does not represent all educational levels within South Africa. As with any other research, when using another sample, there is a possibility that the results will differ, possibly due to test sophistication (Abrahams, 2002; Foxcroft & Roodt, 2005). The results could therefore discriminate against individuals who do not have optimal educational levels, because they were not included in the research. Researchers encourage the inclusion of all possible groups when conducting research on the validity and reliability of personality measuring instruments (cf. Abrahams & Mauer, 1999; Prinsloo, 1992; Prinsloo & Ebersöhn, 2002). It is important that samples of sufficient size and representation are purposively identified to ensure an overlap between a research sample and the target population about which one wants to know more (Prinsloo & Ebersöhn, 2002).

3.3 RECOMMENDATIONS

3.3.1 Recommendations regarding future research

Recommendations for future research would firstly be to include an equal representation of white, Indian, Coloured and African race groups in further research. According to the Employment Equity Act (1998) all employers should take steps to encourage equal opportunities in the workplace and should remove unfair discrimination. The SAPI project is developed to be in line with legislation, and therefore equal representation of all race and languages will encourage equal opportunities and remove unfair discrimination.

A second recommendation will be, in future research all possible groups should form part of the research, not only university students. According to van der Merwe (2005, p.45), ‘The study population should be more representative of South African society in order to determine the measure's suitability for all our cultures.’

3.3.2 Recommendations regarding future research within the SAPI project

No recommendations for the organisational context are being made because this instrument is still in its developmental phase and not yet ready to be applied in an organisational setting. However, recommendations regarding future research within the SAPI project can be made.

Recommendations for future research would include investigating the item properties of the Soft-heartedness cluster using the Rasch Model in order to identify possible sources of differential item functioning. According to de Bruin (2004):

The Rasch model may be fruitfully applied in the analysis of items. Specifically, a Rasch analysis can show whether (a) the items in a scale fit the requirements of the model and therefore measure the same trait, (b) the categories of the rating scale function appropriately, (c) the items succeed in separating individuals with different standings on the trait of interest, and (d) the items form a meaningful hierarchy in terms of the probability of endorsement. Furthermore, a Rasch analysis produces standard errors for each item calibration and person measure, which may be used to construct confidence intervals around

individual observations. The standard errors for persons may be plotted against the person measures to show how precisely the scale measures over different levels of the latent trait (p. 18).

Another recommendation would be to include all the original Soft-heartedness facets in future studies; this might curb the clustering of the subclusters into the positive and negative poles.

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