The Factor Structure of the Social Axioms Survey II (SASII) in the South African Context

Adi Barnard & Deon Meiring
Department Human Resource Management
Economic Management Science
Ian Rothmann
Optentia Research Focus Area
North-West University
Vanderbijlpark
South Africa

Correspondence to: Deon Meiring
e-mail: deon.meiring@up.ac.za

Abstract

The objective of this study was to validate the new Social Axioms Survey (SASII). The study sample comprised university students (n = 793) as well as their family members and friends (n = 645). Confirmatory factor analysis (CFA) following and an initial exploratory factor analysis yielded a five-factor model: Social Cynicism, Social Complexity, Reward for Application, Religiosity and Fate Control. The findings of this study support the use of the new SASII in South Africa for research purposes.

Keywords: values, beliefs, social axioms, equivalence, item bias

Beliefs represent how people arrange their social world or their social realities. General beliefs are universal in scope (Barnard, Meiring & Rothmann, 2008; Kurman, 2011) and are premised on the assumption of truth resulting from personal experience and socialisation (Leung & Bond, 2004; & Singelis, Hubbard). Measures of social axioms have operationalized five-factors: Social Cynicism, Reward for Application, Social Complexity, Fate Control and Religiosity (Leung & Bond, 2004) to evaluate the universality and meaning of the structure of beliefs (Leung, K., Bond, M. H., Reimel de Carrasquel, S., Munoz, C., Hernandez, M., Murakami, F., & Singelis, T. M., 2002). Data are needed on the cross-cultural transportability of these social axiom constructs. This study aimed to investigate the structure of the Social Axioms Survey (SAS) in the South African setting. Findings would be important for determining the veracity of claims regarding the presumed pan-cultural structure of social axioms.

Social axioms in relation to values and beliefs

A social axiom is based on the supposition of a relationship between two behavioural concepts (Leung & Bond, 2008; Leung & Bond, 2009; Singelis, Hubbard, Her & An, 2003). This relationship can be correlational or causal (Bond, Leung, Au, Tong & Chemonges-Nielson, 2004; Leung & Bond, 2004; Leung & Bond, 2009; Leung et al., 2002). For example, the belief statement 'hard work leads to reward' indicates that a causal relationship exists between 'hard work' and 'reward' (Leung & Bond, 2004). According to Kurman (2011) a social axiom supplies the answer to a 'how' question (i.e., How will I get rewarded? I will get rewarded through working hard). The social axiom also constitutes a general statement, because there are numerous forms of 'hard work' and many forms of 'reward'. Moreover, is not a value statement or about imputed desirability of a relational term (Leung & Bond, 2004) or of its instruments (Kurman, 2011). In contrast to a social axiom (belief), "a value is concerned with the desirability and importance of a single conceptual entity" (Leung & Bond, 2009, p. 2). Thus beliefs differ from values in the sense that the evaluative element of a value is general, while the evaluative element of a belief is specific (Leung & Bond, 2004). However, when an evaluative belief becomes specific, the belief becomes a social axiom (Leung & Bond, 2004; Leung et al., 2002). Axioms are thus truth statements for an individual, but do not assess desired goals (Leung & Bond, 2004). The Social Axioms Survey

(SAS: Bond, Leung, Au, Tong & Chemonges-Nielson, 2004) holds promise as a pan-cultural measure of evaluative beliefs.

The Evolution of the Social Axioms Survey (SAS)

The original SAS is a 60-item to of five evaluative beliefs: Social Cynicism (18 items), Reward for Application (14 items), Social Complexity (12 items), Fate Control (8 items) and Religiosity (8 items) (Bond, Leung, Au, Tong & Chemonges-Nielson, 2004; Bond, Leung, Au, Tong, Reimel de Carrasquel et al., 2004b; Chen, S. X., Bond, M. H., & Cheung, F. M. (2006); Cheung, Leung et al., 2006; Leung & Bond, 2004; Leung & Bond, 2009; Leung et al., 2002; Leung et al., 2012). These factors represent general (context free) beliefs (i.e. social axioms).

The first factor, Social Cynicism, represents "a negative view of human nature, a bias against some social groups, a mistrust of social institutions, and a belief that people tend to ignore ethical means in pursuing their goals" (Leung & Bond, 2009, p. 3). An example of a Social Cynicism statement is "kind-hearted people usually suffer losses" (Bond, Leung, Au, Tong & Chemonges-Nielson, 2004, p. 178). The second factor, Reward for Application, represents "a belief complex asserting that the investment of effort, knowledge, careful planning and other resources will lead to positive outcomes" (Leung & Bond, 2009, p. 3). An example of a Reward for Application statement is "hard working people will achieve more in the end" (Bond et al., 2004, p. 178). The third factor, Social Complexity, represents "a belief constellation holding that there are multiple ways to solve a problem, and that people's behavior, indeed a given person's behavior, may vary across situations" (Leung & Bond, 2009, p. 3). An example of a Social Complexity statement is "one has to deal with matters according to the specific circumstances" (Bond et al., 2004, p. 178). The fourth factor, Fate Control, represents "a belief complex claiming that life events are predetermined by various external forces, but that there are ways for people to influence the negative impact of these forces" (Leung & Bond, 2009, p. 3). An example of a Fate Control statement is "fate determines one's success and failures" (Bond et al., 2004, p. 179). The fifth and last factor, Religiosity, represents a belief in "the existence of a supernatural being but also a number of beliefs about the beneficial social functions of religious institutions and practices" (Leung &

Bond, 2009, p. 3). An example of a Religiosity statement is "religious people are more likely to maintain moral standards" (Bond et al., 2004, p. 179).

The new SAS (or SASII) (Leung & Bond, 2009; Leung et al., 2012) was designed " to improve the reliability of the five social axioms dimensions by generating new items based on the construct definitions of the axiom dimensions from diverse cultural perspectives" (Leung et al., 2012, p. 852). The SASII (Leung et al., 2012) supports the same five-factor structure as the SAS (Leung et al., 2002), namely Social Cynicism, Reward for Application, Social Complexity, Fate Control and Religiosity. However, two additional sub-factors of the Fate Control factor have also been identified, namely Fate Determinism and Fate Alterability (Leung et al., 2012). Leung et al. (2012, p. 834-835) defined the five axiom dimensions as follows: "Social cynicism asserts that human nature and the social world yield negative outcomes; reward for application refers to the belief complex that people's use of effort, knowledge, careful planning and other resources will lead to positive outcomes; social complexity asserts that people's behavior may vary across situations and that problems have multiple solutions; fate control refers to the belief complex that life events are pre-determined by fatalistic forces, but that people may be able to predict and alter the decree of fate by various means; finally, religiosity asserts the existence of a supernatural being and the beneficial functions of religious practice."

Evidence from South Africa

Barnard, Meiring and Rothmann (2008) investigated the SAS's construct equivalence, item bias and reliability in the South African context using a sample drawn from the South African Police Service (SAPS). They reported that only four interpretable factors were consistent with Leung et al.'s (2002) model, namely, Social Cynicism, Reward for Application, Fate Control and Religiosity. Social Complexity did not replicate, as it had low Cronbach's alpha values (<0.60). However, low score reliabilities were observed for three of the factors (Reward for Application, Fate Control and Religiosity). Moreover, in Barnard et al.'s (2008) study the SAS construct of Social Complexity also did not replicate. Hence these two scales (Fate Control and Social Complexity) needed to be improved (Leung et al., 2012). In a subsequent study, Burgess (2011) used social axioms as a cultural measure for business

research and found that South Africans exhibit extreme social axiom scores characterized by socioeconomic, cultural and regulating institutions.

Summary of the research evidence

The new Social Axioms Survey (SASII), developed by Leung et al. (2012), is rooted in qualitative research and Western literature on beliefs (Leung et al., 2002) and, like most other psychological scales, started its development in the West for later application in other cultures (e.g., Cheung, Cheung, Wada & Zhang, 2003; Costa & McCrae, 1992; Fetvadjiev & Van de Vijver, 2015; Hough & Ones, 2002; McCrae et al., 2005; Nel, Valchev, Rothmann, Van de Vijver, Meiring & De Bruin, 2012). There are two problems with this importation strategy. One: while the definitions of specific constructs are seen as appropriate in the original culture they may not be appropriate in another culture. Two: certain items may inadequately capture the nuances of a specific construct in contexts where the instrument is applied (Cheung, 2004). In this regard, the International Test Commission (2016) provides guidelines for test adaptation and the analyses of adapted tests to allow matches of variables across language and cultural groups. For example, the guidelines suggest that problematic items be improved by utilising content experts from different language backgrounds.

South African legislation, such as the Employment Equity Act (No. 47 of 2013), places a direct emphasis on the cultural appropriateness of psychological tests used in South Africa (Paterson & Uys, 2005). Taking into consideration South Africa's multi-cultural population, as well as the emphasis that the Employment Equity Act (No. 47 of 2013) places on the fair and equitable use of tests, it is clear that additional research concerning the cross-cultural applicability of tests is required. According to Paterson and Uys (2005), in order for tests to be cross-culturally applicable the test scores need to be comparable across groups. This indicates that the construct that the test intends to measure does not differ across groups. Considerable research is still needed to establish the validity and reliability of the SASII (Leung et al., 2012).

Objectives and Hypotheses

The main objective of this study was to assess whether the new Social Axioms Survey model (SASII) fits the data collected in a South African context and whether the SASII measures the same social axiom constructs included in the SASII a priori social axiom five-factor model. As part of this objective, the study investigated whether the SASII measures identical social axioms constructs (beliefs) to those contained in the a priori social axiom five-factor structure, on the individual level, in the South African context.

The study was guided by the following question: Can generalised beliefs (i.e. social axioms) as measured by the SASII on the individual level be applied in a South African context as defined by the SASII instrument? The following hypotheses were tested:

- Hypothesis 1: The measurement model implied by the scoring key of the SASII can closely reproduce the five factors from the items of the sub-scales;
- Hypothesis 2: The factor loadings of the items on their designated latent social axiom dimensions are statistically significant;
- Hypothesis 3: The latent social axiom dimensions correlate low to moderately with each other; and
- Hypothesis 4: The reliabilities of the latent social axioms are moderately high to high.

Method

Participants

The study sample comprised 793 university students and their family members and friends (n = 645) (see Table 1). The ages of the participants varied from below 20 years old to above 60, with the majority of respondents (51%) being between the ages of 21 and 30.

Instrument

The SASII consists of 97 social axiom items (Leung et al., 2012). Respondents rate belief items on a five-point Likert scale according to the degree to which they believe each of the

Table 1

Characteristics of Participants (N = 1567)

Item	Category	Frequency	Percentage
Gender	Male	643	40.7%
	Female	914	58.9%
	Missing values	10	0.5%
Age	Below 20	305	22.5%
	21 – 30	830	51.0%
	31 – 40	99	4.0%
	41 – 50	127	9.1%
	51 – 60	117	8.4%
	Over 60	30	2.3%
	Missing values	59	2.8%
Race	White	972	66.4%
	Black	237	15.1%
	Coloured	93	5.9%
	Indian	82	5.2%
	Missing values	183	8.3%
Participant	University Student	793	55.8%
	Not University Student	645	38.3%
	Missing values	129	5.9%

items to be true. Response options range from 1 (strongly disbelieve) to 5 (strongly believe). Five social axiom factors are included: Social Cynicism (20-items), Social Complexity (23-items), Reward for Application (17-items), Religiosity (17-items) and Fate Control (20-items). Fate Control consists of two sub-factors, namely Fate Determinism (nine items) and Fate Alterability (11-items). The following Cronbach's alpha for each dimension were reported by Leung et al. (2012): Social Cynicism 0.70 (mean $\alpha = 0.79$), Reward for Application 0.70 (mean $\alpha = 0.77$), Social Complexity 0.65 (mean $\alpha = 0.68$), Fate Control 0.65 (mean $\alpha = 0.68$) and Religiosity 0.70 (mean $\alpha = 0.85$).

Procedure

Permission for the study was obtained from the University of Pretoria's ethics committee. The sample of students, family members and friends consented to participate in the study. The questionnaire was accompanied by a covering letter explaining the purpose of the research and emphasising the confidentiality of the research project. The completed raw data was converted to an SPSS dataset for use in Mplus 7.11.

Analysis

Analyses were conducted with Mplus Version 7.11 (Muthen & Muthen, 2012). A CFA was executed using Mplus (Marsh, H. W., Muthen, B, Morin, A. J. S., Ludtke, O., Asparouhov, T., Trautwein, U., & Nagengast, B., (2010).) to ascertain whether the five-factor structure of the SASII (Leung et al., 2012) provides a good fit to the data ($N = 1567$) as per the substantive hypothesis (Khan, 2006).

The following Mplus fit indices were used to determine the SASII goodness of model fit to the data: (i) Chi-square statistic, Root Mean Square Error of Approximation (RMSEA) and Weighted Root Mean Square Residual (WRMR) as absolute fit indices; (ii) Tucker Lewis Index (TLI) as an incremental fit index; and (iii) Comparative Fit Index (CFI) (Hair, J. F. Jnr., Anderson, R. E., Tatham, R. L. & Black, W. C., 1998). According to Van de Schoot, Lugtig and Hox (2012) a reasonable model fit has TLI and CFI values higher than 0.90 and an RMSEA value lower than 0.08. A good model fit has TLI and CFI values higher than 0.95 and an RMSEA value lower than 0.05 (Van de Schoot et al., 2012). According to Wang and

Wang (2012) a WRMR value of 1.0 or lower is considered as a good fit of the model to the data.

First, a CFA was conducted using Mplus Version 7.11 to determine whether the a priori five-factor structure of the SASII (Leung et al., 2012) is a good fit to the data. Second, as an exploratory step, the study population data ($N = 1567$) was split into two random samples, creating sample 1 ($N = 784$) and sample 2 ($N = 783$). Third, model development was done on sample 1 to create a more parsimonious model. Finally, a CFA was conducted for the total sample ($N = 1567$) and the reliability coefficients were computed for each factor of the parsimonious SASII model.

Results

Measure Fit Indices. The initial fit indices for the SASII model were χ^2 20,552, $N = 1{,}567$, $df = 4{,}549$, $p < 0.001$, RMSEA = 0.047, WRMR 3.005, CFI = 0.71 and TLI = 0.70. All factor loadings were significant at the 0.05 level. The correlations among the five latent factors were low ($r < 0.11$). The RMSEA, which is not sensitive to sample size but is sensitive to model complexity, suggested a good model fit to the population (Brown, 2006; Van de Schoot et al., 2012). However, the CFI and TLI produced values too low (< 0.90) for an adequate model fit (Van de Schoot et al., 2012). Given these initial poor CFA fit statistics, as an exploratory step the study population ($N = 1567$) data was split into two random samples using the SPSS package (SPSS Inc., 2015) creating Sample 1 ($N = 784$) and Sample 2 ($N = 783$). The chi-square test was conducted and indicated no significant differences between Sample 1 and Sample 2.

Exploring further to determine whether a five-factor model would provide a fit to the data, an exploratory factor analysis (EFA) using Sample 1 ($N = 784$) and specifying a "Model: F1-F5" (exploring a five-factor model structure) was conducted using Mplus Version 7.11 with WLSMV estimator and default settings. A five-factor structure emerged from the data that was comparable to the five-factor structure of the a priori SASII model, thus providing face validity for the structure. An analysis of the EFA results highlighted improved factor fit indices compared to the fit indices for the CFA. The EFA fit indices, which closely

resembled reasonable factor fit indices, were χ^2 6,420, N = 784, df = 4,181, $p < 0.001$, RMSEA = 0.025, WRMR 1.221, CFI = 0.90 and TLI = 0.89.

As a second exploratory step, all items with loadings lower than 0.30 in the EFA (items 3, 4, 8, 13, 19, 43, 55, 68, 71 and 77) were excluded from an adjusted EFA. In terms of the SASII factors, two of the removed items were from the factor Reward for Application (items 4 and 55) and eight items were from the factor Social Complexity (items 3, 8, 13, 19, 43, 68, 71 and 77). The revised scale, containing 87-items (all of which had loadings higher than 0.30 in the second step described above), was subjected to the adjusted EFA. The adjusted EFA exhibited improved, and reasonably good, factor fit indices. The adjusted EFA fit indices were χ^2 5,255, N = 764, df = 3,235, p < 0.001, RMSEA = 0.027, WRMR 1.205, CFI = 0.91 and TLI = 0.90.

Five Factor Structure of Social Axioms

Based on these fit indices, the adjusted EFA model extracted five factors from Sample 1. In addition, 74 of the 87 items included had loadings higher than 0.30 and loaded on the relevant a priori SASII factor. The original five-factor structure thus emerged; especially with regard to the factors Fate Control, which extracted 18 items (out of 20) with loadings > 0.30, and Religiosity, which extracted 15 items (out of 17) with loadings > 0.30. Although Social Cynicism extracted 25 items, six items (items 41, 45, 57, 63, 72 and 80) had cross-loadings with Religiosity, one item (item 81) had a cross-loading with Reward for Application and one item (item 94) had a cross-loading with Social Complexity, leaving 17 items (out of 19) with loadings > 0.30 on the a priori factor. Reward for Application extracted 22 items; however, eight items (items 11, 26, 37, 42, 56, 82, 87 and 90) had cross-loadings with Social Complexity, leaving 14 items (out of 15) with loadings > 0.30 on the a priori factor. Social Complexity extracted 15 items, of which four items (items 29, 32, 36 and 58) had cross-loadings with Social Cynicism and one item (item 72) had a cross-loading with Religiosity, leaving 10 items (out of 15) with loadings of > 0.30 on the a priori factor.

As a third exploratory step, and only using items with loadings > 0.40 of each of the individual factors from the aforementioned step, a more parsimonious CFA model was

formed (Wang & Wang, 2012). A CFA was conducted on sample 2 ($N = 783$) using Mplus Version 7.11 to test the model's fit to the data. By following the steps described above to create a more parsimonious CFA model (i.e., as an exploratory step, using only the most reliable items of each individual factor), the SASII exhibited a vastly improved model fit. The fit indices for the improved CFA model were χ^2 3,221, N = 783; df = 1,420, $p < 0.001$, RMSEA = 0.038, WRMR 1.654, CFI = 0.89 and TLI = 0.89. All factor loadings were significant at the 0.05 level. These findings mimicked previous research findings reported by Leung et al. (2012), who found a CFI = 0.89 and argued that this should be considered a reasonably good fit, considering the complexity of the SASII model. However, these findings clearly indicated that the model fit could be improved further (CFI and TLI < 0.90).

As a final step in creating the parsimonious SASII model, taking into consideration the improved CFA fit indices in the third exploratory step, item 96 ("Young people are impulsive and unreliable") was excluded because it had high modification indices (MI) values for factor 2 (MI = 85.17), factor 3 (MI = 90.13) and factor 5 (MI = 42.60). An error of covariance was also allowed between items 65 ("There is a supreme being controlling the universe") and 95 ("Evidence of a supreme being is everywhere for those who seek its signs") of the factor Religiosity. The CFA fit indices for the parsimonious SASII model were χ^2 3,015, N = 783; df = 1,431, $p < 0.001$, RMSEA = 0.037, WRMR 1.612, CFI = 0.90 and TLI = 0.90. The parsimonious SASII model presented a reasonable model fit (Van de Schoot et al., 2012) and is reported in Table 2. Social Cynicism had 13 items (originally 20), Reward for Application had 10 items (originally 17), Social Complexity had eight items (originally 23), Fate Control had 14 items (originally 20) and Religiosity had nine items (originally 17) with loadings of > 0.40. Thus 54 items were retained from the SASII model's a priori 97 items to create a parsimonious SASII model. It is noted that Leung et al. (2012) also used a shortened 40-item version of the SASII in their study. According to Wang and Wang (2012) a smaller number of items per factor sometimes results in better model fit. Thus, the more parsimonious the model, the better fitting the solutions will be (as found in this study), as measured by RMSEA, CFI and χ^2 test (Wang & Wang, 2012).

Table 2

Item description and CFA loading of the 54-item parsimonious SASII model

Nr	**Social Cynicism**	Loading
69	Kind-hearted people usually suffer losses	**0.62**
74	Praise is just a sweet way for people to get what they want from others	**0.59**
70	Opportunities for people to get wealthy promote dishonesty	**0.58**
66	People who become rich and successful forget the people who helped them along the way	**0.56**
28	Old people are usually stubborn and biased	**0.52**
29	People create hurdles to prevent others from succeeding	**0.52**
32	People dislike others who succeed in life	**0.50**
93	People always expect something in return for a favor	**0.50**
86	Good connections with people in power are more important than hard work	**0.49**
36	Powerful people tend to exploit others	**0.48**
79	Kind-hearted people are easily bullied	**0.46**
44	People deeply in love are usually blind	**0.44**
34	To care about societal affairs only brings trouble for yourself	**0.42**
Nr	**Reward for Application**	Loading
83	Endurance and determination are key to achieving goals	**0.68**
67	Difficult problems can be overcome by hard work and persistence	**0.62**
75	Hard working people will achieve more in the end	**0.61**
27	Failures can make people wise	**0.58**
30	Building the way step by step leads to success	**0.55**
15	Success requires strong willpower	**0.54**
7	One gets from life as much as one puts into it	**0.47**
84	Hard-working people are well rewarded	**0.47**
40	Knowledge is necessary for success	**0.45**
53	Competition brings about progress	**0.41**
Nr	**Social Complexity**	Loading
56	Every person is unique	**0.65**
42	A person's behavior is influenced by many factors	**0.62**
23	People may behave unpredictably	**0.54**

11	A situation can change drastically in an unexpected direction	**0.52**
87	A bad situation can suddenly change for the better	**0.46**
20	Human behavior changes with the social context	**0.45**
31	People can suddenly lose everything they have	**0.45**
82	People may have opposite behaviors on different occasions	**0.44**
Nr	**Fate Control**	Loading
48	Individual characteristics, such as appearance and birthday, can reveal one's fate	**0.76**
12	Fate determines a person's success in life	**0.68**
78	Fate determines one's successes and failures	**0.66**
21	Matters of life and death are determined by fate	**0.66**
33	There are ways for people to find out about their fate	**0.63**
46	The people whom a person will love in his or her life is determined by fate	**0.62**
5	People's wealth is determined by fate	**0.62**
35	Major events in people's life can be predicted	**0.61**
22	There are certain ways to help us improve our luck and avoid unlucky things	**0.59**
51	Luck can be enhanced by certain tactics	**0.58**
89	Some people are born lucky	**0.58**
17	Good luck follows if one survives a disaster	**0.58**
18	There are many ways for people to predict what will happen in the future	**0.58**
10	Individual characteristics, such as appearance and birthday, affect one's fate	**0.53**
Nr	**Religiosity**	Loading
85	Religion helps people make good choices for their lives	**0.77**
38	Religious faith contributes to good mental health	**0.74**
73	Religion makes people happier	**0.71**
52	Practicing a religion unites people with others	**0.70**
54	Religious people are more likely to maintain moral standards	**0.65**
6	Belief in a religion helps one understand the meaning of life	**0.61**
64	Religion makes people healthier	**0.60**
65	There is a supreme being controlling the universe	**0.46**
95	Evidence of a supreme being is everywhere for those who seek its signs	**0.43**

Reliability of scores

As a final step, and to test the parsimonious SASII model, a CFA was conducted for the total sample ($N = 1567$). The fit indices for the parsimonious SASII model for the total sample were χ^2 5,011, $N = 1567$; df = 1,431, $p < 0.001$, RMSEA = 0.040, WRMR 2.068, CFI = 0.90 and TLI = 0.90. All factor loadings were significant at the 0.05 level. These findings indicated a reasonably good fit (Van de Schoot et al., 2012). Hence, hypotheses 1 to 3 are accepted. The reliability coefficients were also computed for each factor of the parsimonious SASII model, using Mplus Version 7.11 and specifying maximum likelihood estimation with robust standard errors (MLR) as estimator (Raykov, 2009). The following reliability coefficients were estimated for the parsimonious SASII model: (i) Social Cynicism: $\rho = 0.78$ (0.76, 0.81); (ii) Reward for Application: $\rho = 0.72$ (0.69, 0.75); (iii) Social Complexity: $\rho = 0.66$ (0.62, 0.70); (iv) Fate Control: $\rho = 0.86$ (0.84, 0.87); and (v) Religiosity: $\rho = 0.81$ (0.78, 0.83). Thus, all the social axiom factors of the parsimonious model have fair reliability coefficients (Raykov, 2009). Hypothesis 4 is thus accepted.

Discussion

This study provided support for the research use of the new version of the SASII in a South African sample. The initial CFA findings of the SASII exhibited an unacceptable model fit (CFI and TLI < 0.90). According to Wang and Wang (2012), this is not an uncommon result when specifying the model based on a priori theory and empirical findings and then attempting to fit the model to the available data. Considering that South Africa has 11 official languages and that measurement instruments are often developed for English speaking groups (Claassen, 1997), Laher (2010) indicated that it is possible that certain item loadings could be ascribed more to the specifics of South African life and culture than to the actual factor being measured. There is a definite link between language and cultural values and beliefs (Fasold, 1990). In addition, certain African languages have a restricted lexicon for describing emotions (Brand, 2004). According to Meiring, D., Van de Vijver, F. J. R., Rothmann, S., & Barrick, M. R. (2005), a participant's English language proficiency definitely influences their understanding of specific words and the interrelationships between words, as well as context

bound meanings. Moreover, the English language is limited in cultural nuancing important to capturing core meanings of indigenous African languages.

EFA was conducted using only the items of each of the individual factors with an item loading > 0.30 to obtain acceptable fit indices (CFI = 0.91 and TLI = 0.90) yielded a good fit of the data. According to Wang and Wang (2012) including fewer items per factor can sometimes lead to a better model fit. Considering the complexity of the SASII model, this was the case in this study as the CFA fit indices exhibited an improved model fit (TLI and CFI = 0.89). Lastly, by improving the CFA to form a more parsimonious SASII model (Wang & Wang, 2012), item 96 ("Young people are impulsive and unreliable") was excluded because it had high modification indices (MI) values for factor 2 (MI = 85.17), factor 3 (MI = 90.13) and factor 5 (MI = 42.60). In addition, an error of co-variance was also allowed between item 65 ("There is a supreme being controlling the universe") and item 95 ("Evidence of a supreme being is everywhere for those who seek its signs") of the factor Religiosity, further underscoring the context specific influences on the meanings of words (Meiring, et al., 2005). For example, participants may have been unable to distinguish between the implied existence of a supreme being found in item 65 and the actual evidence of a supreme being found in item 95. In conclusion, a reasonable model fit (TLI and CFI = 0.90) was achieved, contributing towards previous research findings reported by Leung et al. (2012). These authors argued that, considering the complexity of the SASII model, a CFI = 0.89 is considered a reasonably good fit.

Limitations of the Study

Several limitations were identified in this study. The first was that the sample consists of university students, their family members and friends and this restricts the generalisability of the findings). The second limitation is the likelihood of sampling bias because a non-probability sample was selected according to convenience, accessibility and cost effectiveness (Saunders, Lewis & Thornhill, 2009; Terre Blanche & Durrheim, 2002). Although the study sample included four language groups from the 11 official South African languages, no groupings were done in the analysis due to the small sample sizes (Kline, 2011).

The third limitation was that the SASII questionnaire is a self-report measure, and this could have caused ordinary method variance (Richardson, Simmering & Sturman, 2009). Method bias refers to the exaggerated relations when research participants respond to questionnaires that have been confirmed by previous research, raising concerns over artificially increased relations (Avey, Luthans & Jensen, 2009). However, according to Doty and Glick (1998) and Johnson, Rosen, and Djurdjevic (2011), ordinary method variance is seldom sufficient reason to invalidate results. The fourth limitation was that the research design did not permit any interpretation of causal relations between the variables.

Future research should include a larger number of black South Africans in the sample to address the generalisability of the results and to allow language grouping (i.e. Bantu language groups). Moreover, future research should focus on structural and scalar equivalence by testing for full measurement invariance (MI) of the SASII related to configural, weak (metric) and strong (scalar) measurement invariance. Future research must also assess the variance between and within groups

Conclusion

The results of this study support the new version of the SASII for research use in the South African context. Individual item descriptions are needed for each factor with low factor loadings (< 0.30), and some items may need to be rephrased to form new items. Construction and validation of additional items may bolster the internal consistency of the social axiom belief dimensions measured by the SASII.

References

Avey, J. B., Luthans, F., & Jensen, S. (2009). Psychological capital: A positive resource for combating stress and turnover. *Human Resource Management, 48*, 677-693. doi: 10.1002/hrm.20294

Barnard, A., Meiring, D., & Rothman, S. (2008). The cross-cultural application of the Social Axioms Survey in the South African Police Service. *South African Journal of Industrial Psychology, 34(2)*, 1-9.

Bond, M. H., Leung, K., Au, A., Tong, K., & Chemonges-Nielson, Z. (2004a). Combining social axioms with values in predicting social behaviours. *European Journal of Personality, 18(3)*, 177-191. doi: 10.1002/per.509

Bond, M. H., Leung, K., Au, A., Tong, K., Reimel de Carrasquel, S., Murakami, F., & Lewis, J. R. (2004b). Culture-level dimensions of social axioms and their correlates across 41 cultures. *Journal of Cross-Cultural Psychology, 35(5)*, 548-570. doi: 10.1177/002202210426838

Brand, G. W. (2004). 'English only'? Creating linguistic space for African indigenous knowledge systems in higher education. *South African Journal of Higher Education, 18(3)*, 27-39.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NHY: The Guilford Press.

Burgess, S. M. (2011). Social axioms: A new culture measure for South African business research. *South African Journal of Business Management 42(3)*, 1-21.

Chen, S. X., Bond, M. H., & Cheung, F. M. (2006). Personality correlates of social axioms: Are beliefs nested within personality? *Personality and Individual Differences, 40*, 509-519. doi: org/10.1016/j.paid.2005.04.016

Cheung, F. M. (2004). Use of Western and indigenously developed personality tests in Asia. *Applied Psychology: An International Review, 53(*2), 173-191. doi: 10.1111/j.1464-0597.2004.00167.x

Cheung, F. M., Cheung, S. F., Wada, S., & Zhang, J. (2003). Indigenous measures of personality assessment in Asian countries: A review. *Psychological Assessment, 15(3)*, 280–289. doi: org/10.1037/1040-3590.15.3.280

Cheung, M. W. L., Leung, K., & Au, K. (2006). Evaluating multilevel models in cross-cultural research: An illustration with social axioms. *Journal of Cross-Cultural Psychology, 37*, 522-541. doi: 10.1177/0022022106290476

Claassen, N. C. W. (1997). Culture differences, politics and test bias in South Africa. *European Review of Applied Psychology 47*, 297-307.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO PI-R) and NEO five-factor inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Doty, D. H., & Glick, W. H. (1998). Common method bias: Does common method bias variance really bias results? *Organizational Research Methods, 1*, 374-406. doi: 10.1177/109442819814002

Employment Equity Act (2013). *Employment Equity Act, No. 47 of 2013*. Republic of South Africa. http://www.labour.gov.za/docs/legislation/eea/act98-055.html Accessed on 28 September 2014.

Fasold, R. (1990). *The sociolinguistics of language*. Oxford, UK: Basil Blackwell.

Fetvadjiev, V. H. & Van de Vijver, F. J. R. (2015). Universality of the five factor model of personality. In J. D. Wright (Ed.), *International encyclopaedia of the social & behavioural sciences* (2nd ed., vol 9; pp. 249-253). Oxford, UK: Elsevier.

Hair, J. F. Jnr., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). *Multivariate data analysis (5th ed.)*. Englewood Cliffs, NJ: Prentice-Hall.

Hough, L. M. & Ones, D. S. (2002). The structure, measurement, validity, and use of personality variables in industrial work, and organizational psychology. In N. Anderson, D. Ones, H. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work & organizational psychology: Vol. 1* (pp. 233–277). London, UK: Sage.

International Test Commission. (2016). *The ITC guidelines for translating and adapting tests (2nd ed.)*. [www.InTestCom.org]. Accessed on 28 September 2016.

Johnson, R. E., Rosen, C. C. & Djurdjevic, E. (2011). Assessing the impact of common method variance on higher-order multidimensional constructs. *Journal of Applied Psychology, 96(4)*, 744-761. doi: org/10.1037/a0021504

Khan, J. H. (2006). Factor analysis in counselling psychology research, training and practice: Principles, advances and applications. *The Counselling Psychologist, 34(5)*, 684–718. doi: 10.1177/0011000006286347.

Kline, R. B. (2011). *Principles and practice of structural equation modeling (3rd ed.)*. New York, NY: The Guilford Press.

Kurman, J. (2011). What I do and what I think they would do: Social axioms and behaviour. *European Journal of Personality, 25*, 410–423. doi: 10.1002/per.8

Laher, S. (2010). Using exploratory factor analysis in personality research: Best-practice recommendations. *South African Journal of Industrial Psychology, 36(1)*, 1-7.

Leung, K. (1989). Cross-cultural differences: Individual-level vs. culture-level analysis. *International Journal of Psychology, 24*, 703–719. doi: 10.1080/00207598908247840

Leung, K., Au, A., Huang, X., Kurman, K., Niit, T. & Niit, K. (2007). Social axioms and values: A cross-cultural examination. *European Journal of Personality, 21(2)*, 91-111. doi: 10.1002/per.615

Leung, K., & Bond, M. H. (1989). On the empirical identification of dimensions for cross-cultural comparisons. *Journal of Cross-Cultural Psychology, 20*, 192-208. doi: 10.1177/0022022189202002

Leung, K., Bond, M. H., Reimel de Carrasquel, S., Munoz, C., Hernandez, M., Murakami, F., Singelis, T. M. (2002). Social axioms: The search for universal dimensions of general beliefs about how the world functions. *Journal of Cross-Cultural Psychology, 33(3)*, 286–302. doi: 10.1177/0022022102033003005

Leung, K., & Bond, M. H. (2004). Social axioms: A model of social beliefs in multi-cultural perspective. *Advances in experimental social psychology, 36,* 119–197. San Diego, CA: Elsevier Academic Press. doi: org/10.1016/S0065-2601(04)36003-X

Leung, K., & Bond, M. H. (2008). Psycho-logic and eco-logic: Insights from social axiom dimensions. In F. van de Vijver, D. van Hemert, & Y. P. Poortinga (Eds.), *Individuals and cultures in multilevel analysis* (pp. 197–219). Mahwah, NJ: Erlbaum.

Leung, K. & Bond, M. H. (Eds.). (2009). *Psychological aspects of social axioms: Understanding global belief systems*. New York, NY: Springer.

Leung, K., Bond, M. H., Reimel de Carrasquel, S., Munoz, C., Hernandez, M., Murakami, F., & Singelis, T. M. (2002). Social axioms: The search for universal dimensions of general beliefs about how the world functions. *Journal of Cross-Cultural Psychology, 33(3)*, 286–302. doi: 10.1177/0022022102033003005

Leung, K., Lam, B. C. P., Bond, M. H., Conway, L. G., Gornick, L. J., Amponsah, B., & Zhou, F. (2012). Developing and evaluating the Social Axioms Survey in eleven countries: Its relationship with the five factor model of personality. *Journal of Cross-Cultural Psychology, 43(5)*, 833–857. doi: 10.1177/0022022111416361

Marsh, H. W., Muthen, B, Morin, A. J. S., Ludtke, O., Asparouhov, T., Trautwein, U., & Nagengast, B. (2010). A new look at the big 5 structure through exploratory structural equation modeling. *Psychological Assessment 22(3)*, 471–491. doi: org/10.1037/a0019227

McCrae, R. R., Terracciano, A. & Members of the Personality Profiles of Cultures Project. (2005). Universal features of personality traits from the observer's perspective: Data from 50 cultures. *Journal of Personality and Social Psychology, 88(3)*, 547–561. doi: org/10.1037/0022-3514.88.3.547

Meiring, D., Van de Vijver, F. J. R., Rothmann, S., & Barrick, M. R. (2005). Construct, item, and method bias of cognitive and personality tests in South Africa. *South African Journal of Industrial Psychology, 31(1)*, 1–8. doi: 10.4102/sajip.v31i1.182

Muthen, L. K., & Muthen, B. O. (2012). *Mplus User's Guide* (7th ed.). Los Angeles, CA: Muthen & Muthen.

Nel, J. A., Valchev, V. H., Rothmann, S., Van de Vijver, F. J. R., Meiring, D., & De Bruin, G. P. (2012). Exploring the personality structure in the 11 languages of South Africa. *Journal of Personality, 80(4)*, 915–948. doi: 10.1111/j.1467-6494.2011.00751.x

Paterson, H., & Uys, K. (2005). Critical issues in psychological test use in the South African workplace. *South African Journal of Industrial Psychology, 31(3)*, 12–22.

Raykov, T. (2009). Evaluation of scale reliability for unidimensional measures using latent variable modeling. *Measurement and Evaluation in Counseling and Development, 42*, 223–232. doi: 10.1177/0748175609344096

Richardson, H. A., Simmering, M. J., & Sturman, M. C. (2009). A tale of three paradigms: Examining post hoc statistical corrections for common method variance from three divergent perspectives. *Organizational Research Methods, 12*, 687–694. doi: 10.1177/1094428109332834

Saunders, L., Lewis, P., & Thornhill, A. (2009). *Research methods for business students (5th ed.)*. Harlow, UK: Pearson Education.

Singelis, T. M., Hubbard, C., Her, S., & An, S. (2003). Convergent validation of the social axioms survey. *Personality and Individual Differences, 34(2)*, 269–282. doi:10.1016/S0191-8869(02)00043-0

Social Axioms Survey II. Retrieved April 9, 2011, from: http://personal.cityu.edu.hk/~mgkleung/sa.htm#Download

SPSS 23.0 [Computer software] (2015). Chicago, IL: SPSS Incorporated.

Statistics South Africa. (2012). *Census 2011*. Pretoria, SA: Statistics South Africa.

Terre Blanche, M., & Durrheim, K. (2002). *Research in practice: Applied methods for the social sciences*. Cape Town, South Africa: University of Cape Town Press.

Van de Schoot, R., Lugtig, P., & Hox. J. (2012). A checklist for testing measurement invariance. *European Journal of Developmental Psychology, 9(4)*, 486–492. doi: org/10.1080/17405629.2012.686740

Wang, J. & Wang, X. (2012). *Structural equation modeling: Applications using Mplus*. West Sussex, UK: John Wiley & Sons.