



ELSEVIER

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

SCIENCE @ DIRECT®

PERSONALITY AND  
INDIVIDUAL DIFFERENCES

Personality and Individual Differences 41 (2006) 201–211

[www.elsevier.com/locate/paid](http://www.elsevier.com/locate/paid)

## Personality and beliefs about the world revisited: Expanding the nomological network of social axioms

Sylvia Xiaohua Chen <sup>a,\*</sup>, Hung Kit Fok <sup>a</sup>, Michael Harris Bond <sup>a</sup>,  
David Matsumoto <sup>b</sup>

<sup>a</sup> *Department of Psychology, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong, China*

<sup>b</sup> *Department of Psychology, San Francisco State University, USA*

Received 17 October 2005; received in revised form 12 January 2006; accepted 12 January 2006

Available online 15 March 2006

---

### Abstract

The present study attempted to evaluate the relationship between personality and beliefs about the world by employing both universally applicable and indigenously derived measures of personality along with the Social Axioms Survey. The bivariate correlations showed only a modest overlap between personality factors and social axioms, and yet canonical correlation analysis indicated a much stronger relationship overall. The moderate relations between specific personality and belief dimensions were also examined and discussed. Furthermore, social axioms were linked with horizontal and vertical individualism and collectivism after controlling for personality, suggesting the close links between beliefs about the world and measures focusing on the culturally derived characteristics of the interpersonal world.

© 2006 Elsevier Ltd. All rights reserved.

*Keywords:* Personality; Belief; Social axioms; The NEO Five-Factor Inventory; The Sino-American Person Perception Scale; Horizontal and vertical individualism and collectivism

---

\* Corresponding author. Tel.: +852 2609 6197; fax: +852 2603 5019.

E-mail address: [sxhchen@psy.cuhk.edu.hk](mailto:sxhchen@psy.cuhk.edu.hk) (S.X. Chen).

## 1. Introduction

Beliefs are cognitive constructs that denote the relationships between categories. Katz (1960) defined belief as the “description and perception of an object, its characteristics, and its relationship with other objects” (p. 165). As a psychological variable tapping individual differences, beliefs about personhood, others and the world influence how one behaves and relates to others. Specially, general beliefs about the structure and functioning of the world generate outcome expectancies for social actions and provide important implications for social behaviors.

There have been few measures assessing pure beliefs which are domain-general (Leung & Bond, 2004). Recently, Leung et al. (2002) have proposed the study of general beliefs and developed the Social Axioms Survey (SAS) as a measure of such beliefs. The construct is termed “social axioms”, defined as “generalized beliefs about oneself, the social and physical environment, or the spiritual world, and are in the form of an assertion about the relationship between two entities or concepts” (p. 289). These, then, are beliefs held by persons about the world in which they function, and as such constitute personalized measures of the social situation they confront.

Based on multicultural studies in 41 countries, Leung and Bond (2004) have identified a pan-cultural, five-factor structure of social axioms at the individual level, namely Social Cynicism, Social Complexity, Reward for Application, Religiosity, and Fate Control. At the culture level, Bond et al. (2004) have conducted an ecological factor analysis and revealed a two-factor structure across 41 nations, viz., Dynamic Externality and Societal Cynicism, and presented the correlations of these culture-level belief dimensions with other cultural-level dimensions, including indices of socioeconomic-political-psychological functioning.

As most trait measures of personality are a mixture of values, attitudes, feelings, beliefs and behavioral reports, beliefs are considered by convention to be part of personality. However, Chen, Bond, and Cheung (2006) have demonstrated only a modest relation between personality characteristics and social axioms, thereby suggesting that personality and beliefs about the world represented two multi-dimensional constructs, without evidence of these beliefs being nested within traditional measures of personality. In their study, the Cross-Cultural Personality Assessment Inventory-2 (previously named the Chinese Personality Assessment Inventory; CPAI; Cheung et al., 1996) was employed to measure personality. Yet, further studies ought to be conducted on the SAS with other personality measures before drawing firm conclusions about the relationship between personality and beliefs about the world, in order to provide evidence of the distinctiveness of social axioms and more importantly, to expand the nomological network of beliefs by establishing linkages with other psychological constructs.

In the present study, to address concerns about both universal applicability and cultural relevance, we will administer two personality measures, the widely-used NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992) with well-established reliability and validity, and the Sino-American Person Perception Scale (SAPPS; Yik & Bond, 1993), an indigenously developed personality inventory. As the NEO-FFI represents etic or universal components of personality, whereas the SAPPS reflects an emic approach that emphasizes a culture-specific orientation, this conceptual framework incorporates the effects of both universal personality factors and culture-specific personality dimensions.

In addition to examining the relation between personality and belief, we also seek to link social axioms with psychological measures of individualism/collectivism. Individualism and collectivism

have been pervasive themes in cultural and cross-cultural psychology (e.g., Hofstede, 1980; Triandis, 1995). The individualistic self is characterized as independent, autonomous, and agentic; the collective self, as interdependent, connected, and communal (e.g., Markus & Kitayama, 1991). Rather than viewing them as a dichotomy, Triandis (1995) argued that individualism and collectivism could be defined in terms of additional attributes: the definition of the self, personal goals, emphasis on exchange or rationality, attitudes or norms as determinants of social behavior. Accordingly, Singelis, Triandis, Bhawuk, and Gelfand (1995) defined the constructs of horizontal (H) and vertical (V) individualism (I) and collectivism (C) theoretically, and supported this distinction in both individualistic and collectivistic cultures (e.g., Triandis & Gelfand, 1998).

As “horizontal” emphasizes equality and “vertical” emphasizes hierarchy (Triandis & Gelfand, 1998), the four constructs can be distinguished in four-way typology: HI represents being unique, and yet highly self-reliant and independent; VI, being competitive, and becoming distinguished by status; HC, perceiving similarities to others, emphasizing common goals, interdependence and sociability; and VC, valuing in-groups, sacrificing personal goals for in-group goals, submitting to authorities. These horizontal and vertical patterns position the self in equal or hierarchical relation to others, and thus embed self-views in interpersonal environments, thereby taking social contexts into consideration more than general I/C constructs do. We suggest that these self-construals are particularly relevant to social axioms which reflect the social world and its functioning.

Based on the above conceptualizations, we predict that there is only a modest overlap between personality and beliefs about the world, but that these social axioms bear significant associations with HVIC. In particular, we hypothesize some specific links of the five belief dimensions with different personality factors and I/C dimensions.

First, social cynicism represents a negative view of human nature and a power-driven assessment of social events (Leung et al., 2002). As individuals with such worldviews are prone to negative affects and interpersonal distress, social cynicism is expected to correlate positively with Neuroticism but negatively with Agreeableness of the NEO-FFI, and to correlate negatively with emotional stability and helpfulness of the SAPPS. Second, social complexity reflects the belief in multiple solutions to social problems and in different ways of achieving various outcomes (Leung et al., 2002). This belief corresponds to the characteristics of Openness to Experience in the NEO-FFI and SAPPS, such as preference for variety, intellectual curiosity, innovative ideas, and unconventional values, so we predict that the openness trait will be positively related to social complexity. Third, reward for application refers to a belief that the investment of human resources in a problem will lead to positive outcomes (Leung et al., 2002). This logic resembles the agentic process of planning, organizing, and carrying out tasks as captured by Conscientiousness in the NEO-FFI and application in the SAPPS, and therefore a positive correlation between them is anticipated. Fourth, religiosity represents a view of positive effects of religious institutions and the influences of spiritual forces on human activities (Leung et al., 2002). However, since no personality factor measures religious beliefs directly, we do not make any prediction for this dimension. Finally, fate control refers to a belief that life events are pre-determined and influenced by impersonal, external forces (Leung et al., 2002). As with religiosity, belief in an external locus of control is not reflected directly in the major personality factors, so that no hypothesis is offered.

Concerning the relationships of social axioms with horizontal and vertical individualism and collectivism, we predict that social cynicism will relate to VI, social complexity to VC, reward

for application to HC, and religiosity to VC, using rationales similar to those for personality dimensions above, but offer no prediction for fate control. In sum, we expect weak relations between the SAS and personality measures, but relatively stronger relations between the SAS and I/C dimensions tapped by the HVIC.

## 2. Method

### 2.1. Participants

The sample consisted of 117 undergraduate students (57 males, 58 females, and 2 unspecified) from the Chinese University of Hong Kong. All participants enrolled in introductory psychology courses and took part in the present study as a partial fulfillment of their course requirements. Their age distribution was below 19 (48.7%), between 20 and 23 years old (45.2%), and between 24 and 26 years old (6.1%).

### 2.2. Instruments

#### 2.2.1. The Social Axioms Survey

The SAS was developed by Leung et al. (2002) to assess general social beliefs. This study employed the short version of the SAS consisting of 25 items with the five highest loading items from each factor in the original Hong Kong sample (Leung et al., 2002). There are five factors in both versions (social cynicism, social complexity, reward for application, religiosity, and fate control), with five items for each factor in the short version. All responses were anchored on a 5-point scale, ranging from *strongly disbelieve* (1) to *strongly believe* (5).

#### 2.2.2. The NEO Five-Factor Inventory

The NEO-FFI (Costa & McCrae, 1992) is a 60-item version of the NEO-PI-R that provides a comprehensive measure of five personality factors, viz., Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Each item was rated on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

#### 2.2.3. The Sino-American Person Perception Scale

Developed by Yik and Bond (1993), the SAPPSS assesses traits on 7-point, bi-polar scales, based on both the Western Five Factor Model and indigenous Chinese adjective checklists. The short form contained 32, bi-polar adjectives tapping eight dimensions of personality: openness to experience, emotional stability, extraversion, application, intellect, helpfulness, restraint, and assertiveness.

#### 2.2.4. The Horizontal and Vertical Individualism and Collectivism Scale

Sixteen items assessing individualism and collectivism were adopted from the instrument used in Triandis and Gelfand's (1998) study, with four, 5-point Likert scale items, each tapping HI, VI, HC and VC. This measure was an extended version of the original Self-Construal Scale designed by Singelis et al. (1995). The theoretical and measurement distinctions between HVIC have been

Table 1  
Means, standard deviations and reliability coefficients of the measures

Measure	Mean	Standard deviation	Reliability coefficient
The NEO-FFI			
Neuroticism	3.27	.60	.84
Extraversion	3.08	.54	.79
Openness to experience	3.37	.44	.65
Agreeableness	3.26	.45	.69
Conscientiousness	3.39	.42	.71
The SAPPS			
Openness to experience	3.97	1.11	.73
Emotional stability	4.20	1.02	.61
Extraversion	3.83	1.09	.75
Application	4.50	.81	.41
Intellect	4.56	.93	.75
Helpfulness	4.45	.73	.42
Restraint	4.23	.90	.59
Assertiveness	4.12	.91	.55
The SAS			
Social cynicism	3.17	.63	.66
Social complexity	4.18	.42	.58
Reward for application	3.76	.63	.75
Religiosity	3.42	.59	.67
Fate control	2.93	.62	.60
I/C			
Horizontal individualism	3.82	.76	.77
Vertical individualism	3.62	.64	.60
Horizontal collectivism	3.55	.54	.57
Vertical collectivism	3.88	.69	.78

confirmed by multimethod-multitrait matrices and other I/C measures (e.g., Triandis & Gelfand, 1998).

Table 1 presents the means, standard deviations and reliability coefficients of each factor for the SAS, NEO-FFI, SAPPS<sup>1</sup> and HVICS.

### 2.3. Procedure

The questionnaire sets were distributed to the participants and collected in class on a self-report basis, with the order of questionnaires counterbalanced. All participants were instructed to indicate their demographic information such as age, gender, year and major of study. In order to encourage honest responding, it was emphasized that all responses were completely anonymous, and that there were no right or wrong answers to any of the questions.

<sup>1</sup> The reliability for some subscales of the SAPPS was low, perhaps due to the small number of items in the subscales. The alphas ranged from .67 to .86 in the study of Yik and Bond (1993), where the scale was developed.

### 3. Results

#### 3.1. Correlations among variables

Pearson correlation coefficients of the variables are reported in Table 2, showing the extent of overlap between personality and social axioms. Among the correlations between the dimensions of axioms and the NEO-FFI, social cynicism was negatively related to Agreeableness,  $r_{(114)} = -.42$ ,  $p < .01$ , but positively to Neuroticism,  $r_{(113)} = .21$ ,  $p < .05$ , partially supporting our first prediction. The correlations between social complexity and personality factors were modest, all lower than .30. Consistent with the second hypothesis, social complexity was significantly associated with Openness to Experience,  $r_{(113)} = .24$ ,  $p < .05$ . Reward for application showed a positive correlation with Conscientiousness,  $r_{(114)} = .21$ ,  $p < .05$ , confirming our third hypothesis. Among the five social axioms, religiosity and fate control had the weakest associations with personality as expected, with none of the correlations reaching significance,  $p > .05$ .

The correlations between the dimensions of axioms and the SAPPs were weaker, with fewer significant results. Of the hypothesized correlations, only that between social cynicism and helpfulness was supported,  $r_{(115)} = -.30$ ,  $p < .01$ . Among other variables, social cynicism was nega-

Table 2  
Intercorrelations between variables

Measure	Social cynicism	Social complexity	Reward for application	Religiosity	Fate control	HI	VI	HC	VC
The NEO-FFI									
Neuroticism	.21*	.24*	-.09	.03	.10	-.08	.28**	-.19*	-.25
Extraversion	-.25**	-.06	.26**	.09	.09	-.17	-.10	.47***	.16
Openness to experience	.05	.24*	-.08	-.02	.14	.04	-.00	.15	.07
Agreeableness	-.42***	-.00	.23*	.15	-.16	-.19	-.33***	.38***	.03
Conscientiousness	-.18	-.05	.21*	-.04	-.02	.12	.03	-.03	.12
The SAPPs									
Openness to experience	-.14	.16	.03	-.03	-.15	.06	-.01	.13	-.04
Emotional atability	-.03	-.19*	-.01	-.05	-.08	.06	-.31**	.07	.06
Extraversion	-.27**	-.14	.06	-.04	-.15	-.18	-.12	.28**	.02
Application	.01	.14	.09	-.05	.03	.03	-.08	.01	.01
Intellect	.05	-.14	.18	.20	.04	.06	-.09	-.02	.17
Helpfulness	-.30**	-.09	.01	.10	-.28**	-.09	-.24	.24**	.01
Restraint	-.14	-.09	.13	.17	.08	-.17	-.17	-.20*	.10
Assertiveness	.01	-.07	-.02	-.07	.04	.20*	-.08	-.12	.04
I/C									
Horizontal individualism	.12	.08	-.09	.00	-.03	-	-	-	-
Vertical individualism	.38***	.27**	.01	-.10	.20*	.16	-	-	-
Horizontal collectivism	-.13	.15	.05	-.13	.06	-.08	-.12	-	-
Vertical collectivism	.06	.14	.20*	.02	.17	-.12	-.12	.42***	-

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

tively associated with Extraversion,  $r_{(115)} = -.27, p < .01$ ; social complexity was negatively related to emotional stability,  $r_{(115)} = -.19, p < .05$ . There were no significant relationships for the other three dimensions of social axioms.

Overall, correlational findings revealed weak to moderate relations between personality and belief dimensions, indicating that the extent of overlap between trait measures of personality, both imported and indigenous, and social axioms was slight. For fate control and religiosity, there were no effects.

### 3.2. Canonical correlation analyses

The Pearson product–moment correlation coefficients reported above represented the overlapping variances between two variables, in this case, the relationships between each personality factor and belief dimension. To assess the overall relationships between personality and social axioms, two canonical correlation analyses were conducted. Canonical correlation analysis is a multivariate technique for identifying the relationships between two sets of variables, and can be regarded as the general case of simple correlation analysis and multiple linear regression.

To check assumptions for canonical correlation analysis, the variables were examined individually for normality through SPSS descriptive programs. The range of correlations between subscales of the NEO-FFI and SAS was from  $-.42$  to  $-.26$ ; that between subscales of the SAPPs and SAS was  $-.30$  to  $-.18$ . Four cases with missing values were excluded from analysis; thus, assumptions were met regarding normality, multicollinearity and missing data. Using SPSS CANCORR, canonical correlation was performed between the five social axioms and the five NEO-FFI factors. Canonical analysis proceeded by redistributing these original variables into composite variates, such that the variates captured substantial variance in the original sets and manifested in linear combinations of social axioms on one side and personality factors on the other. Linear combinations were chosen to maximize the canonical correlation for each pair of canonical variates.

Five canonical correlations were shown on the SPSS CANCORR output. With all of them included,  $\chi^2_{(25)} = 70.78, p < .001$ ; after removing the first one, subsequent  $\chi^2$  tests were not statistically significant,  $p > .05$ . The first pair of canonical variates, therefore, accounted for the significant relationships between social axioms and the five personality factors, and was the only pair that could be interpreted reliably. The first canonical correlation was  $.59$ , representing 34% of the overlapping variance.

Total percent of variance and total redundancy indicated that the first pair of canonical variates was moderately related. It had high loadings on social cynicism and reward for application ( $-.81$  and  $.65$ , respectively) for the axioms set, and Agreeableness and Conscientiousness ( $.69$  and  $.41$ , respectively) for the personality set. Thus, high Agreeableness and Conscientiousness were related to low social cynicism and high reward for application.

The Redundancy Index was computed by summing individual redundancies, that is, the proportion of variance of belief dimensions which was accounted for by all canonical variates in personality. The first personality variate accounted for 12% of the variance in the social axioms. This total redundancy could be interpreted as the average squared multiple correlation for predicting social axioms from personality variables. Since the focus of this paper is on the relationships between two sets of measures, within-set overlapping variances are not discussed here.

Similarly, canonical correlation was performed between five social axioms and eight SAPPS personality factors. With all five canonical correlations included,  $\chi^2_{(40)} = 79.79$ ,  $p < .001$ , and with the first one removed,  $\chi^2_{(28)} = 46.44$ ,  $p < .05$ . Since subsequent  $\chi^2$  tests were not statistically significant,  $p > .05$ , the only significant relationships were in the first two pairs of canonical variates, which will thus be interpreted. The first canonical correlation was .52 (27% overlapping variance between variates); the second was .44 (20% overlapping variance between variates).

The first pair of canonical variates had high loadings on fate control (.68), religiosity (.55), social cynicism (.50) and social complexity (−.60) in the axioms set, and intellect (.76), openness (−.59) and helpfulness (−.50) in the personality set. So, respondents who were higher on intellect but less open and helpful tended to believe in fate control, religiosity, social cynicism, and endorsed lower social complexity. The second pair of canonical variates loaded high on social cynicism (−.66) and social complexity (−.60) in the axioms set, and restraint (.61), extraversion (.55) and helpfulness (.41) in the personality set. That is, restrained, extraverted, and helpful individuals were prone to a combination of social beliefs low in both social cynicism and social complexity. The Redundancy Index indicated that the personality variates accounted for 13.7% of the variance in social axioms.

### 3.3. Multiple regression analyses

To expand the nomological network of social axioms, five hierarchical regression analyses were conducted to test whether horizontal and vertical individualism and collectivism explained social axioms above and beyond both the universal and indigenous personality measures. With the five axioms as criterion variables, demographic variables, i.e., age and gender, were entered to control for their effects in the first block. Block 2 contained the first canonical variate of the NEO-FFI, and block 3 contained the first two canonical variates of SAPPS personality dimensions to test the added value of this indigenous measure after accounting for the imported, universal measure. Then, HVIC measures were entered in the last block.

In the first regression, 35.9% of the total variance in social cynicism was explained,  $R^2 = .36$ ,  $F(9, 107) = 6.67$ ,  $p < .001$ . After controlling for demographics and personality, vertical individualism emerged as significant predictor,  $p < .01$ , as predicted. The regression model accounted for 24.1% of the total variance in social complexity,  $R^2 = .24$ ,  $F(9, 107) = 3.78$ ,  $p < .01$ . Following the above regression procedure, we found that vertical individualism and vertical collectivism each made significant positive contributions,  $p < .05$ , partially confirming our hypothesis for VC. In predicting reward for application, 22.5% of the variance was accounted for,  $R^2 = .23$ ,  $F(9, 107) = 2.06$ ,  $p < .01$ . However, inconsistent with our prediction, the positive effect of vertical collectivism was significant,  $p < .05$ . The fourth regression revealed that 11.7% of the variance in religiosity was predicted,  $R^2 = .12$ ,  $F(9, 107) = 1.57$ ,  $p > .05$ . Surprisingly, vertical collectivism did not contribute significant variance,  $p > .05$ . Though the regression model explained 15.9% of the variance in fate control,  $R^2 = .16$ ,  $F(9, 107) = 2.24$ ,  $p < .05$ , none of horizontal and vertical individualism and collectivism had significant effects above and beyond demographics and personality,  $p$ 's  $> .05$ , consistent with our hypothesis.

In sum, the results of multiple regression indicated that four of the five dimensions of social axioms had their distinct correlates with horizontal and vertical individualism and collectivism

after personality had been factored out, thus providing evidence that this culturally derived measure of interpersonal orientation taps extensively into beliefs about the world.<sup>2</sup>

#### 4. Discussion

In the present study, we used canonical correlation analysis to evaluate the overall relationships between personality and social axioms, but bivariate correlations to examine the specific associations between each personality factor and belief dimension. To supplement the bivariate analysis, multiple regression was conducted to predict axioms from the four I/C constructs, after controlling for demographics and personality. The findings from bivariate correlations showed that personality factors and belief dimensions shared only a modest overlap. These results lend support to our predictions and confirm those of [Chen et al. \(2006\)](#) that used a different personality inventory with direct applicability to Chinese culture. However, the overall canonical correlations between personality and social axioms were much stronger than the bivariate correlations; thus, the two statistical techniques assessed different levels of the relationships between the two sets of constructs.

When discussing the relations between the five social axioms and Big Five personality factors, [Leung and Bond \(2004\)](#) speculated that some moderate degree of association would exist between the two inventories. They suggested that the items in the NEO PI-R consisted of beliefs about the self and the world and might contribute to the overlap between them. Our correlational findings reveal that the overlap appeared in three aspects: First, both the Conscientiousness trait and the belief in reward for application represent some agentic characteristics involving effort, knowledge, and planning. These qualities are based upon the notion that hard work leads to positive outcomes, and in turn promotes academic, occupational, or interpersonal achievement. Second, the trait of Openness to Experience and belief in social complexity both reflect divergent thinking and cognitive complexity, with flexibility in dealing with issues or problems, different ways of handling tasks, and innovative and unconventional approaches to changes and challenges. Third, among the axioms, social cynicism shared the most variance with personality factors. Its positive correlation with Neuroticism and negative correlation with Agreeableness are confirmed as hypothesized, suggesting that cynical worldviews implied more negative affects and less cooperative interpersonal behaviors. Interestingly, a convergent pattern of negative correlations between social cynicism and Extraversion emerged in both the NEO-FFI and SAPPs with similar magnitude, indicating that individuals with cynical beliefs tend to be more reserved, introverted, and less sociable. Perhaps a lack of trust arising from the biased view against human nature inhibits them from socializing with others.

---

<sup>2</sup> This conclusion can also be confirmed by multiple regression analyses with horizontal and vertical individualism and collectivism as dependent variables and social axioms as independent variables, after demographics and personality measures were controlled. Regression results showed that social cynicism and social complexity significantly contributed additional variance to vertical individualism, and social complexity to vertical collectivism,  $p$ 's < .05. Thus, HVIC could be predicted by social axioms even after the personality effects had been considered.

An examination of the NEO-FFI items showed that a few measure general beliefs, but the majority are “I”-statements depicting the respondent’s feelings, actions and ideas, and the items related to beliefs are perceptions of one’s own attitudes, values and behaviors. Likewise, the SAPPS items are descriptions of internal attributes. This may explain the small overlap between the two concepts at the factor level, as personality factors assess evaluations of the self, whereas social axioms assess perceptions of the social world outside the self. Generalized expectancies about the external context are what make social axioms distinct from trait dimensions of personality.

In addition to examining bivariate correlations between variables, the use of canonical correlation analysis in this study enables us not only to test the strength of overall relationships between two sets of measures, but also to identify canonical variates linking relevant variables from the two sets. These multivariate linkages further our understanding of what and how specific personality and belief dimensions cluster together. The pair of canonical variates accounting for the significant relationships between the NEO-FFI personality and social axioms indicated that high Agreeableness and Conscientiousness were related to low social cynicism and high reward for application. This result resembled those found in the bivariate correlations, but further suggested the groupings of these two NEO-FFI variables with these two axioms.

The two significant pairs of canonical variates between the SAPPS personality and social axioms confirm the added value of using indigenously developed instruments. The first pair grouped high intellect, low openness and low helpfulness with high fate control, religiosity and social cynicism, and low social complexity. [Costa and McCrae \(1992\)](#) suggested that Intellect might go into the Openness factor as they both associate with education and measured intelligence. However, our results show that in Chinese culture they overlap only modestly ( $r = .24, p < .01$ ), as individuals with high intellect were closed to experience and held a set of social beliefs indicative of lower openness and complexity.

The second pair of variates clustered round the personality traits of restraint, extraversion, and helpfulness together with less belief in social cynicism and lower social complexity. It is not surprising that extraverted and helpful individuals tend to view the world less cynically, but it is intriguing to find restraint also in this grouping. As the restraint construct combines the traits of dignified, thorough, cautious, and conscientious in the SAPPS ([Yik & Bond, 1993](#)), a plausible explanation may be that these control characteristics promote conservative modes of thought.

The assessment of further personality variation beyond etic and emic measures is enabled by using the HVICS, a measure more sensitive to cultural issues arising from individualism and collectivism. Consistent with our hypothesis, social cynicism was associated with vertical individualism after controlling for demographics and personality, since individuals with cynical worldviews are likely to see social institutions as repressive, hierarchical structures, and be self-protecting due to their mistrust of others. Social complexity also shares the same beliefs in the interdependent nature of the world, thus matching the vertical patterns of inter-relationship characterizing hierarchy, which can be either individualistic or collectivistic.

Despite this first step in linking social axioms with horizontal and vertical self-construals, future research needs to validate these links in other cultures, preferably both individualistic and collectivistic cultures, and to shed new light on how social axioms guide behaviors differently in horizontal and vertical contexts. A stronger test would use personality and social axioms to account for some outcome variables with different predictive power, thus further demonstrating their discriminant validity.

## Acknowledgements

We would like to express our gratitude to Wai Chan for his valuable advice on the statistical analyses, and to the editor and the two reviewers for their helpful comments on earlier versions of the manuscript. Thanks also go to Emily Lo for her help in data analysis.

## References

- Bond, M. H., Leung, K., Au, A., Tong, K. K., de Carrasquel, S. R., Murakami, F., et al. (2004). Culture-level dimensions of social axioms and their correlates across 41 cultures. *Journal of Cross-Cultural Psychology*, *35*, 548–570.
- 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.
- Cheung, F. M., Leung, K., Fan, R. M., Song, W. Z., Zhang, J. X., & Zhang, J. P. (1996). Development of the Chinese personality assessment inventory. *Journal of Cross-Cultural Psychology*, *27*, 181–199.
- 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.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
- Katz, D. (1960). The functional approach to the study of attitudes. *Public Opinion Quarterly*, *24*, 163–204.
- Leung, K., & Bond, M. H. (2004). *Social axioms: A model of social beliefs in multi-cultural perspective*. *Advances in Experimental Social Psychology* (Vol. 36). San Diego, CA: Elsevier Academic Press, pp. 119–197.
- Leung, K., Bond, M. H., de Carrasquel, S. R., Munoz, C., Hernandez, M., Murakami, F., et al. (2002). Social axioms: the search for universal dimensions of general beliefs about how the world functions. *Journal of Cross-Cultural Psychology*, *33*, 286–302.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: implications for cognition, emotion, and motivation. *Psychological Review*, *98*, 224–253.
- Singelis, T. M., Triandis, H. C., Bhawuk, D., & Gelfand, M. J. (1995). Horizontal and vertical dimensions of individualism and collectivism: a theoretical and measurement refinement. *Cross-Cultural Research*, *29*, 240–275.
- Triandis, H. C. (1995). *Individualism and collectivism*. Boulder, CO: Westview.
- Triandis, H. C., & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology*, *74*, 118–128.
- Yik, M. S. M., & Bond, M. H. (1993). Exploring the dimensions of Chinese person perception with indigenous and imported constructs: creating a culturally balanced scale. *International Journal of Psychology*, *28*, 75–95.