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RELATIONS BETWEEN SOCIAL AXIOMS AND VALUES: FINDINGS FROM GERMANY AND INDIA

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Over the last 30 years of social psychological research, a large number of empirical studies set out to predict social behavior more precisely by including cultural aspects. Such research has predominantly relied upon value-based dimensions of culture originally identified by the classic work of Hofstede (1980). Of these dimensions, individualism/collectivism has been applied most widely in search of cross-cultural patterns in social behavior (Smith & Bond, 1998; Triandis, 1995). There is growing evidence that the remaining value-based dimensions (uncertainty avoidance, power distance, masculinity/femininity defined by Hofstede and Confucian work dynamism taken from the Chinese Culture Connection, 1987) provide additional insights into the antecedents of social behavior, although these have not yet received much attention in research (e.g., Brockner et al., 2001).

Attempts to predict social behavior based on value priorities have, however, yielded ambiguous results. Leung, Bond and Schwartz (1995) have emphasized that there are only moderate links between values and specific behaviors. For instance, in a cross-cultural study on preferences for conflict regulation styles of Chinese and American individuals, Leung (1987) found that the effect of the value-based cultural dimension of individualism/collectivism was mediated by individual perceptions of the effectiveness of the conflict regulation procedures. Thus, it was not the degree of collectivistic or individualistic orientation per se that explained differences in the conflict regulation style preferences of Americans and Chinese. Rather, it turned out that collectivistically-oriented individuals and individualistically-oriented individuals did not share common beliefs about the consequences of particular styles of conflict regulation and, therefore, showed different preferences.

Recently, Leung and his collaborators (Leung et al., 2002; Bierbrauer & Klinger, 2001) have suggested a conceptual framework to understand cultural differences that is based on the study of beliefs. On the basis of qualitative research in Asia and South America and surveys in Asia, Western Europe and America the authors developed the Social Axioms Survey (SAS). In the course of this research, they were able to identify a set of five dimensions along which individual belief systems are organized. The five factors were labeled *Social Cynicism* (a negative view of human nature and social events), *Reward for Application* (a general belief that effort, knowledge and careful planning will lead to positive results), *Social Complexity* (a belief that there are multiple solutions to social issues, and that the outcome of events is uncertain), *Fate Control* (a belief that life events are pre-determined and that there are some ways for people to influence these outcomes), and *Spirituality* (a belief in the existence of supernatural forces that exert a positive effect on outcomes) (Leung et al., 2002). When data collected in Germany were included in the factor analysis, a sixth factor *Interpersonal Harmony* (beliefs concerning the antecedents of positive interpersonal relationships and the consequences of such relationships) was identified.

Future research will have to examine the degree to which this instrument predicts attitudes and social behaviors over and beyond other instruments that also claim to have pan-cultural qualities. For instance, Bond, Chemonges-Nielson, Leung and Tong (in press) have shown that social axioms, in conjunction with values, yield significantly better results for predicting conflict behavior than the assessment of value orientations alone. The primary focus of this research is to introduce the additional psychological construct of beliefs to the cross-cultural study of social behavior, rather than to replace value-based dimensions of culture that hitherto dominated cross-cultural psychological research.

As a relatively new instrument to measure cultural orientations, the SAS still needs to provide evidence for its scientific value in cross-cultural psychology. In order to investigate the tool further, it is important to demonstrate its convergent and discriminant properties in different cultural settings. One objective of the present exploratory study involving Indian and German respondents was to test whether the factor solutions reported by Leung et al. (2002) are pan-cultural. Furthermore, we explored the possible linkages between social axioms and values at the individual level.

Method

Participants

A total of 331 students participated in this study, 176 females and 155 males. Their age ranged from 16 to 64 years with a mean age of 23.2 years. In Germany, there were 181 participants, most of them undergraduate students. Their age mean was 25.2 years and 43.1% (78) of the respondents were males, 56.9% (103) were females. The age means for males ($M = 25.6$) and females ($M = 25.0$) did not differ significantly. Of the total, 13.9% (25) of the respondents were older than 30 years. Most of the participants attended introductory courses in psychology, some in law. In India, 150 students participated in the study, most of them were also undergraduate students. Their age mean was 20.8 years. Almost half the respondents (51.3%) were men, and 48.7% (73) were females. The age means for males ($M = 20.9$) and females ($M = 20.7$) did not differ significantly in this case either. None of the respondents was older than 30 years.

Procedure and materials

All participants completed a questionnaire that consisted of the 82-item Social Axioms Survey and four scales that assessed the value-based cultural dimensions of power distance, uncertainty avoidance, masculinity/femininity and individualism/collectivism. The items of the power distance, uncertainty avoidance, masculinity/femininity scales were interspersed throughout the questionnaire. The materials had originally been written in English except for the scale that measures individualism/collectivism. The Indian respondents completed questionnaires written in English. The German respondents received questionnaires written in German. The translations were undertaken using competent bilinguals. The equivalence of the translations was ensured by extensively discussing several possible translations among the experts and by using back translations for those items that expressed more complex beliefs.

The Social Axioms Survey. The first part of the questionnaire consisted of 82 items taken from the top loading items in the factor analysis employed in the five-nation study of social beliefs (Leung et al., 2002). Social Cynicism was measured by 19 items, Reward for Application by 16 items, Social Flexibility by 14 items, Fate Control by 8 items, and Spirituality by 12 items. Additionally, 13 items were included that had high

loadings on the Interpersonal Harmony factor. Each item was scored on a six-point, agree-disagree scale. Analyses were conducted for both the 82-item scale and a 46-item-scale suggested by Leung.

Power Distance. As measures of power distance, three items were included that were successfully used in cross-cultural justice research by Brockner et al. (2001). In their study a Cronbach's α of .60 was reported denoting an average inter-item correlation of approximately .3 (Carmines & Zeller, 1979). Participants were required to indicate their degree of agreement or disagreement to the statements (a) An organization is most effective if it is clear who is the leader and who is the follower; (b) If followers trust their leaders wholeheartedly, the group will be most successful; and (c) It is best for our society to let the elite few decide what is good for us. Each item was scored on a six-point, agree-disagree scale with higher numbers indicating a higher degree of power distance. In the combined data set, the three items measuring power distance correlated positively with coefficients ranging from $r = .22$ to $r = .44$ (all $ps < .0001$). While Cronbach's α was low within the German data set (.41) and especially so within the Indian data set (.37) it was more respectable when computed for the combined data set (.57).

Uncertainty Avoidance. To measure uncertainty avoidance four items were chosen from a scale developed by Stull and von Till (1994). Participants were asked to indicate their degree of agreement or disagreement to the statements (a) It is important to me to plan for the future very carefully; (b) Company rules are always to be followed; (c) A manager must be an expert in the field in which he/she manages; and (d) Employees should remain with one employer for life. Each item was scored on a six-point, agree-disagree scale with higher numbers indicating a higher degree of uncertainty avoidance. In the combined data set the four items are positively correlated ($.39 > r > .09$ with four highly significant correlation coefficients of $p < .0001$ and the remaining two coefficients approaching significance, $ps < .10$). While the items did not show internal consistency in the Indian data set (Cronbach's $\alpha = .00$), the coefficient was much higher for the German data set (.41) and even higher when computed for the combined data set (.55) denoting an average inter-item correlation $> .20$ (Carmines & Zeller, 1979).

Masculinity/Femininity. To measure masculinity/femininity orientation four items were taken from a scale developed by Stull and von Till

(1994). Participants were asked to indicate their degree of agreement or disagreement to the statements (a) It is very important for me to receive recognition for my work; (b) It is important for me to keep my work life separate from my private life; (c) The most important things to my career are a good salary and a job that I do well and like; and (d) People must learn to make their own way in this world. Each item was scored on a six-point, agree-disagree scale. The items were coded so that higher numbers indicate higher masculinity by Hofstede's (1980) definition. In the combined data set the four items measuring masculinity/femininity correlated positively with coefficients ranging from $r = .16$ to $r = .27$ (all $ps < .01$). Coefficient alpha is respectable when computed for each of the two cultures separately (.47 for the German data set, .52 for the Indian data set) and for the combined data set (.50).

The items measuring power distance, uncertainty avoidance and masculinity/femininity were summed and averaged to give indices of power distance, uncertainty avoidance, and masculinity/femininity, respectively.

Individualism/Collectivism. As a measure of the individualism/collectivism orientation the Cultural Orientation Scale (COS; Bierbrauer, Meyer & Wolfradt, 1994) was administered. It distinguishes between a normative and an evaluative component of the individualism/collectivism orientation of individuals. The normative component was measured by 13 items such as "How often do people [in your country] share their ideas and newly acquired knowledge with their parents?" or "Do people [in your country] often find it annoying when visitors arrive unannounced?" Each item was scored on a seven-point scale ranging from 'not at all' to 'always'. The items were consistently coded in such a manner that higher numbers indicate a more collectivistic orientation. In the combined data set the reliability of this sub-scale is acceptable (Cronbach's $\alpha = .70$, for the Indian data set .68 and for the German data set .32). Therefore, the items were summed and averaged to form an index of the normative component of individualism/collectivism.

The evaluative component was measured by 13 items such as "What do you think of people [in your country] sharing their ideas and newly acquired knowledge with their parents?" or "What do you think of people [in your country] being annoyed when visitors arrive unannounced?" Each item was measured on a seven-point scale ranging from 'very bad' to 'very good'. The items were consistently coded in such a manner that higher

numbers indicate a more collectivistic orientation. In the combined data set the reliability of this sub-scale is acceptable (Cronbach's $\alpha = .68$; for the Indian data set .67 and for the German data set .43). Therefore, the items were summed and averaged to form an index of the evaluative component of individualism/collectivism.

At the end of the questionnaire data on age, gender and level of education was recorded.

Results

Reliability Tests of the Social Axioms Survey

For the German data set, the indicators of reliability and mean item-total correlations for the 82-item-scale and for the 46-item short version are shown in Table 1. The results show that the reduction in the number of items results in an increase of the internal consistency of the Social Flexibility factor only. The alpha coefficients of the other factors do not differ markedly for the two scale variants. Moreover, the results show respectable reliabilities for three factors: Social Cynicism, Spirituality, and Reward for Application. For these factors, the average inter-item correlations are $\geq .20$. The Fate Control and Social Flexibility factors show somewhat lower reliability coefficients in the German data set, which indicates a higher variance across the items of these two factors.

Table 1

Reliabilities of the Social Axioms Factors: Results for the German Data Set

Belief-based Factor	46-Item Scale		82-Item Scale	
	Cronbach's α	Mean Item-total Correlation	Cronbach's α	Mean Item-total Correlation
Social Cynicism	.69	.30	.71	.29
Reward for Application	.60	.28	.67	.28
Social Flexibility	.51	.24	.34	.13
Fate Control	.53	.29	.59	.30
Spirituality	.76	.48	.74	.32
Interpersonal Harmony	. ¹	. ¹	.52	.21

Note: ¹ The 46-item scale does not include any items that loaded highly on this factor in the analysis conducted by Leung et al. (2002).

For the Indian data set, the indicators of reliability and mean item-total correlations for the 82-item-scale and for the 46-item short version are shown in Table 2. The results are similar to those for the German data set. Again, the reliability coefficients for the Interpersonal Harmony, for the Fate Control and for the Social Flexibility factors are somewhat lower than those for the remaining three factors.

Taken together, the results indicate considerable within-factor variance for the Fate Control, Social Flexibility and Interpersonal Harmony factors in both cultures. The purpose of the next step of the analysis is to find out whether all factors can be replicated by the culture-specific data sets and, consequently, whether the six-factor solution reported by Leung et al. (2002) is pan-cultural.

Table 2

Reliabilities of the Social Axioms Factors: Results for the Indian Data Set

Belief-based Factor	46-Item Scale		82-Item Scale	
	Cronbach's α	Mean Item-total Correlation	Cronbach's α	Mean Item-total Correlation
Social Cynicism	.71	.31	.74	.32
Reward for Application	.69	.36	.74	.34
Social Flexibility	.54	.27	.54	.22
Fate Control	.54	.30	.56	.27
Spirituality	.70	.43	.70	.35
Interpersonal Harmony	. ¹	. ¹	.57	.26

Note: ¹ The 46-item scale does not include any items that loaded highly on this factor in the analysis conducted by Leung et al. (2002).

Factor Analyses of Social Axioms Surveys

Separate factor analyses using the maximum likelihood method were conducted for the national data sets and for the combined data set. When the extended Social Axioms Survey data set of 82 items (i.e., including the items of the Social Harmony factor) was employed, none of the factor analyses led to acceptable results. The Kaiser-Meyer-Olkin measures indicated rather low levels of sampling adequacy (.56 for the German data set, .36 for the Indian data set). For the combined data set the sampling ad-

equacy was acceptable ($KMO = .71$). However, the structure of the six factors that were extracted did not show adequate similarities with the solutions presented by Leung et al. (2002). Taken together, these results indicate that the six-factor solution could not be replicated by the national data sets or by the combined data set when the 82-item-scale was used.

Next, factor analyses were performed employing the reduced SAS item set that consists of 46 items. The Kaiser-Meyer-Olkin measures indicated acceptable sampling adequacy both for the combined data set ($KMO = .68$) and for the national data sets (Germany: $KMO = .61$; India: $KMO = .58$). Factors were rotated using varimax rotations. In most cases, items with loadings $< |.32|$ were omitted before interpreting the factors because they show less than 10% of overlapping variance with the respective factor (Comrey & Lee, 1992; Tabachnick & Fidell, 1996).

For the *German* data set the elbow criterion suggested a five-factor solution. Six items had loadings $> |.32|$ on the factor with the highest eigenvalue (4.01). This factor represents the Spirituality factor since all of these items loaded on this factor in the five-nation solution (Leung et al., 2002). The second extracted factor had an eigenvalue of 3.51. Seven items showed loadings $> |.32|$ on this factor. Five of these items loaded on the Social Cynicism factor. Moreover, 10 items that loaded highly on the Social Cynicism factor in the five-nation solution showed high loadings ($> .29$) on this factor. Therefore, this factor adequately represents the Social Cynicism dimension. The third factor had an eigenvalue of 2.86. It showed high loadings of five items that loaded highly on the Reward for Application factor in the five-nation solution. Therefore, this factor adequately represents the Reward for Application dimension. The fourth factor (eigenvalue = 2.60) had 9 items with loadings $> |.32|$. Three of these items pertained to the Social Flexibility dimension, four to the Social Cynicism dimension and two to the Spirituality dimension in the five-nation solution. Therefore, this factor does not clearly correspond to one of the belief dimensions that were found by Leung et al. (2002). The fifth factor (eigenvalue = 2.34) had four items with high loadings, all of which were subsumed under the Fate Control factor in the five-nation solution.

The five factors explained 26.0% of the total variance in combination, and 6.19%, 5.89%, 5.26%, 4.90% and 3.80%, respectively. The factor analysis on the German data set revealed that a total of 15 items – of which five originally loaded on the Social Cynicism factor, five on the Reward for

Application factor, three on the Social Flexibility factor, and two on the Fate Control factor – showed loadings $> |.32|$ on all of the five factors extracted and were, therefore, omitted before the factors were interpreted.

For the *Indian* data set the elbow criterion also suggested a five-factor solution. The factor showing the highest eigenvalue (4.70) had high loadings from 10 items. This factor represents the Reward for Application factor since seven of these items loaded on this factor in the five-nation solution. The remaining three items loaded on the Social Flexibility factor in the five-nation solution. They do not, however, change the character of this factor substantially. The second extracted factor had an eigenvalue of 4.20. Thirteen items showed loadings $> |.32|$ on this factor. Ten of these items originally loaded on the Social Cynicism factor. Therefore, this factor adequately represents the Social Cynicism dimension. The third factor had an eigenvalue of 3.17. It showed high loadings of seven items, six of which loaded highly on the Spirituality factor. Therefore, this factor represents the Spirituality dimension in the Indian data set. The fourth factor (eigenvalue = 2.62) showed high loadings of six items. Three of them pertained to the Fate Control dimension, two of them loaded highly on the Social Flexibility dimension, and one item was subsumed to the Social Cynicism dimension in the five-nation solution. Therefore, this factor cannot clearly be interpreted for the Indian data set. The fifth factor extracted (eigenvalue = 2.03) showed high loadings of four items. This factor also showed considerable overlap between the Fate Control, Social Cynicism and Social Flexibility dimensions of beliefs and was, therefore, not labelled.

The five factors explained 29.2% of the total variance in combination, and 7.33%, 7.16%, 6.18%, 4.29% and 4.25%, respectively. The factor analysis on the Indian data set revealed 10 items with loadings $< |.32|$ on all of the five factors. Three of these items loaded on the Reward for Application factor, to the Social Cynicism factor and to the Social Flexibility factor in the five-nation solution, respectively. The remaining item was subsumed to the Spirituality factor.

Comparing the factor analysis results for the German and the Indian data sets it turns out that the Social Cynicism factor, the Reward for Application factor, and the Spirituality factor could be replicated in both data sets. The five-nation solution and the results presented here show considerable overlap in the loadings of most items that pertained to one of these factors. The Fate Control factor was found for the German data set but not

for the Indian data set. Finally, the factor analyses for the German and Indian data sets extracted a fifth factor which, however, did not show any similarities to the Social Flexibility factor that was suggested by Leung et al. (2003). Thus, three of the belief-based factors of culture that were suggested by Leung and his collaborators were replicated using culture-specific data sets from India and Germany. However, the structures of the factor loadings for the German and the Indian data sets differ. First, the number of items with loadings $\geq .32$ is higher for the factors that were extracted from the Indian data than for the factors extracted from the German data set. Second, items with high loadings in one data set did not always load highly on the respective factor in the other data set. Taken together, these results indicate that though there is some evidence that three belief-based dimensions of culture are pan-cultural the matching of the factors across cultures is low.

For the purpose of examining the generalizability of the five-factor solution another factor analysis was conducted using the standardized data for both samples in combination. Standardization is necessary here to rule out the possibility that a distorted factor structure may be found because of substantial cross-cultural score differences (cf. Van de Vijver & Leung, 1997). For the *combined* data set the elbow criterion again suggested a five-factor solution. The factor showing the highest eigenvalue (3.99) had loadings $\geq .32$ from 6 items. This factor replicates the Spirituality dimension because all of these items loaded highly on this factor in the five-nation solution (Leung et al., 2002). The second extracted factor had an eigenvalue of 3.22. Four items showed high loadings on this factor all of which were subsumed to the Social Cynicism factor in the five-nation solution. The third factor had an eigenvalue of 2.95. It showed high loadings from four items. All of these items loaded on the Reward for Application factor. Thus, this factor replicates the Reward for Application dimension in the combined data set. The fourth factor (eigenvalue = 2.31) showed high loadings from three items all of which loaded highly on the Social Cynicism factor in the five-nation solution. The fifth factor that was extracted (eigenvalue = 2.07) showed high loadings from five items. The structure of the factor loadings shows considerable overlap between the Social Flexibility, the Spirituality, and the Social Cynicism dimensions of belief. Therefore, this factor cannot be identified along the belief dimensions suggested by Leung et al. (2002).

The five factors explained 18.7% of the total variance in combination, and 5.77%, 3.58%, 3.37%, 3.30% and 2.64%, respectively. The results of the factor analysis for the combined data set showed that 25 items had loadings < 1.321 on all of the five factors.

The result of this factor analysis underscores the conclusion drawn from the results of the culture specific analyses. The belief-based Social Cynicism, Reward for Applications and Spirituality dimensions of culture were replicated in this study. These dimensions turn out to be pan-cultural. However, less than 50% of the items of the SAS short version show loadings that indicate at least 10% of overlapping variance between items and factors. Moreover, the factors that could be interpreted clearly account for only about 12% of the total variance. Taken together, these results indicate that the Social Cynicism, the Reward for Application and the Spirituality factor are pan-cultural, albeit not very stable belief-based dimensions of culture.

Finally, the differences between means of Germans and Indians on the three factors that were replicated from the combined data set were calculated. On none of the three factors did Indians and Germans show statistically significant mean differences.

Relationships between Value-based and Belief-based Dimensions of Culture

This study involved data from Germany and India because it was assumed that German and Indian culture can be clearly distinguished along the value-based dimensions of culture (Hofstede, 1980). Table 3 shows that Germans and Indians have significantly different power distance, uncertainty avoidance, masculinity/femininity and individualism/collectivism orientations. The results are consistent with those reported by Hofstede (1980) more than two decades ago except for the uncertainty avoidance orientation. In our data Indians showed a higher inclination to avoid uncertainties than Germans.

One of the main objectives of this study was to explore the relationship between belief-based and value-based dimensions of culture. Correlation coefficients were calculated between all interpretable factors extracted from the data sets on the one hand and the index values of the power distance, uncertainty avoidance, and masculinity/femininity measures and of the index values measuring the two components of the COS on the other. The results are summarized in Tables 4, 5, and 6.

Table 3

Cultural Orientations of Indians and Germans along Value-based Dimensions

	Indians	Germans	<i>t</i>	(df)
	<i>M</i> (SD)	<i>M</i> (SD)		
Power Distance	3.82 (.88)	2.51 (.78)	14.30 ^{***}	(328)
Uncertainty Avoidance	4.20 (.61)	3.37 (.63)	11.91 ^{***}	(324)
Masculinity/Femininity	5.08 (.61)	4.79 (.54)	4.64 ^{***}	(327)
Collectivism/Individualism				
normative component	4.70 (.63)	3.94 (.34)	13.29 ^{***}	(214.2)
evaluative component	5.03 (.60)	4.27 (.41)	13.02 ^{***}	(249.2)

Note: All differences between means are statistically significant, ^{***} $p < .0001$.

Table 4

Correlations between Belief-based and Value-based Dimensions of Culture: Results for the German data set

Belief-based Dimension	Value-Based Dimensions				
	Power Distance	Uncertainty Avoidance	Masculinity/Femininity	COS normative component	COS evaluative component
Spirituality	.12	.07	-.01	-.03	.26 ^{***}
Social Cynicism	.01	-.17 [*]	.14	-.14	-.12
Fate Control	.03	-.10	-.12	-.14	-.09
Reward for Application	.11	.42 ^{***}	.24 ^{***}	.06	.20 ^{**}

Note: Values denote correlation coefficients. ^{*} $p < .05$; ^{**} $p < .01$; ^{***} $p < .001$; ^{****} $p < .0001$.

A thorough analysis of the correlation patterns between indexes measuring value priorities and the factors extracted from the combined data set revealed several relationships between particular value-based and belief-based dimensions. First, the Reward for Application factor correlates significantly with most of the value-based dimensions of culture in all data sets. This indicates a considerable overlap between the four value-based

Table 5

Correlations between Belief-based and Value-based Dimensions of Culture: Results for the Indian data set

Belief-based Dimension	Value-Based Dimensions				
	Power Distance	Uncertainty Avoidance	Masculinity/Femininity	COS normative component	COS evaluative component
Social Cynicism	.26**	.24**	-.01	-.16	.10
Spirituality	.11	.03	.15	.21*	.19
Reward for Application	-.01	.22*	.42***	.28**	.28**

Note: Values denote correlation coefficients. * $p < .05$; ** $p < .01$; *** $p < .0001$.

Table 6

Correlations between Belief-based and Value-based Dimensions of Culture: Results for the combined data set

Belief-based Dimension	Value-Based Dimensions				
	Power Distance	Uncertainty Avoidance	Masculinity/Femininity	COS normative component	COS evaluative component
Spirituality	.09	.05	.06	.07	.16**
Social Cynicism	.04	-.07	.17**	.05	.05
Reward for Application	-.12*	.10	.20***	.11	.06

Note: Values denote correlation coefficients. * $p < .05$; ** $p < .01$; *** $p < .0001$.

dimensions and beliefs that there is reward for application in life, especially in the responses of the Indian sample. However, most of the correlation coefficients are $< .30$, which means that this factor and the value-based dimensions of culture have less than 10% of variance in common. Second, the Spirituality factor shows statistically significant correlations only with the individualism/collectivism dimension. Again, the coefficients are low suggesting that the dimensions are sufficiently dissimilar from

each other. A somewhat similar result can be seen for the Social Cynicism factor. Third, the Fate Control factor does not show any significant correlations with the value-based dimensions of culture. In sum, the results show that the belief-based dimensions and the value-based dimensions of culture apparently do not have much variance in common. This result is clear evidence for the discriminant properties of the instruments.

Discussion

The present study served two purposes. One purpose was to provide further evidence for the generality of the SAS factor solution from one European and one Asian country. The analyses revealed that three of the six factors that were found elsewhere (Leung et al., 2002) could be replicated both in two national data sets and in the combined data set. Hence, Social Cynicism, Reward for Application, and Spirituality seem to reflect cultural orientations that can be found in the beliefs of people from two very different cultures across a broad range of domains of life. However, the Social Flexibility and the Interpersonal Harmony dimensions of social axioms could not be observed. Moreover, a considerable number of the 46 items of the reduced version of the Social Axioms Survey did not show sufficiently high loadings on any of the factors extracted. These results indicate that the development of the survey has not yet come to its final state. Two problems still warrant attention. First, more data are needed both from different cultures and from different sociodemographic groups within these cultures to find out whether the five-dimensional structure (Leung et al., 2002) is in fact generalizable across a broad range of cultures and groups. Second, discussions with Indian respondents have shown that the range of domains of life that is included in the SAS appears to be incomplete from their perspective. Many of the Indian respondents stated that the themes of marriage, family relationships, friendships, and gender dynamics were inadequately taken into consideration. Hence, the addition of a few more items might change the factor structure and might then result in the identification of additional belief-based dimensions of culture.

The analyses of the present study have also shown that belief-based and value-based dimensions of culture overlap in some dimensions. In particular, a number of systematic relationships between the Reward for Application factor and all value-based dimensions of culture were found.

Furthermore, the individualism/collectivism orientation is significantly correlated with the belief-based Spirituality dimension. However, most of the correlation coefficients that are statistically significant are relatively small ($r < |.30|$). This indicates that the correlated dimensions share less than 10% of their variance. From that we can conclude that the inclusion of belief-based cultural dimensions in cross-cultural and intercultural research will result in a more thorough understanding of the underpinnings of social behavior.

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