The circular structure of values: The case of China

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*T*his study examined the circular structure of values in China. The circular structure is a central element of Schwartz value theory and visualises the idea that some values are similar while others conflict with one another. Whereas numerous studies addressed the question whether the circular structure of values can be generalised cross-culturally, results for China are inconclusive. In this paper, we argue that taking a closer look at China provides a challenge to the circular structure and allows for drawing conclusions regarding the limits versus generalizability of Schwartz' theory. For this purpose, we first conduct a re-analysis of Chinese data from a former meta-analysis (Study 1) and second, present results from a large study of 10,652 Chinese college students (Study 2). Results of Study 1 revealed that graphical representation of the circular structure matched theoretical expectations but five out of six samples showed relatively bad fit to the theorised structure. By contrast, data in Study 2 showed a good model fit. As an overall conclusion, the circular structure is well supported in the Chinese context, and small sample sizes in previous studies might have caused the imperfect match to the prototypical circular structure.

Keywords: Values; Portrait Value Questionnaire; Circumplex; China.

In recent years, the study of values has yielded important insights on how to describe the overall concept of "culture" (Schwartz, 2014). According to the Schwartz value theory (Schwartz & Bilsky, 1990), cultures can be described in terms of shared values and beliefs that have developed in the process of adapting to challenges emerging in the social and economic environment. Hence, large cross-cultural surveys like the European Social Survey (e.g. Davidov, Schmidt, & Schwartz, 2008) and the World Value Survey (Welzel, 2013) have incorporated measures of values to better understand fundamental cultural differences and particularities worldwide.

In his theory, Schwartz (1992) postulated that values are related to one another in a circular structure. In this structure, the strength of relationships between values is visualised by their distance in a circle: Values with similar motivational underpinnings are close to one another and as the distance increases, values become more and more dissimilar. The Schwartz value theory has inspired extensive cross-cultural research. These studies have either focused on mean differences in values across cultures (e.g. Davidov et al., 2008) or on the extent to which the circular structure can be generalised (Bilsky, Janik, & Schwartz, 2011; Steinmetz, Isidor, & Baeuerle, 2012). According to Fischer (2013), the second question may

provide insights on more fundamental processes, as differences in structure would imply "that human motivation is dependent on the external conditions that allow humans to thrive (or not)" (p. 257).

This study aims to shed light on the circular structure of values in China. Although numerous studies addressed the cross-cultural validity of the circular structure, evidence from China is inconclusive. A recent meta-analysis (Steinmetz et al., 2012) provided evidence on substantial differences across cultural regions. Whereas the circular structure was exactly replicated in some regions (e.g. German speaking and Latin European countries), samples from other regions, including China, diverged considerably from the theorised structure. Although this meta-analysis presents the most comprehensive consideration of available literature, there are two unsolved problems. First, due to the nature of a meta-analysis that implies aggregating data in order to reveal a broad picture, theoretically important specifics may be ignored. Second, the contribution of data from specific cultures to the overall picture depends on the amount of research conducted within these cultures which, however, may not always be in proportion to their size and relevance. This is most salient for China. In the meta-analysis by Steinmetz et al. (2012), only nine, relatively small studies with Chinese data were included. Hence, its contribution to the overall results was only marginal. Moreover, Chinese studies were assigned to three different clusters of countries created by the authors and no specific cultural profile could be investigated.

With regard to the size and theoretical importance, Chinese culture provides a challenging and interesting context for studying values. Chinese cultural history and current context strongly contrasts Western culture, where the Schwartz value theory has been developed. There is a large number of studies by Chinese researchers on cultural values which only to a limited extent have been integrated with the Schwartz value theory (Kulich & Zhang, 2010). Moreover, Schwartz values—and particularly the circular structure—have proven to be related to the economic situation of countries (Bilsky et al., 2011; Fischer, 2013). China belongs to the fastest developing economies in the world, with far-reaching consequences at the social and cultural level and for people's everyday lives (Zhai, 2008). Hence, highlighting the dynamics and potential similarities versus differences between Chinese and Western value structures contributes to better understand how such rapid economic development may affect human motivation.

The aim of our paper is to provide a closer look at the validity and, thus, cross-cultural generalizability of the quasi-circumplex structure of Schwartz values in China. This aim is approached by reporting results of two studies. First, we re-analyse six Chinese samples[1]

used in the meta-analysis by Steinmetz et al. (2012) in order to clarify the particular value structure within these samples. Whereas Steinmetz et al. (2012) aggregated these samples with samples from other cultures, focusing on China in particular will provide evidence especially for this culture. Second, we provide results from our own study in which the validity of the quasi-circumplex structure was tested with a large sample ($N = 10,652$) of Chinese college students.

The contribution of the two studies presented in this paper to current literature is twofold: First, by presenting a large amount of empirical evidence from China, we provide the best possible evidence for the validity of the quasi-circumplex structure of values in the Chinese context. Second, as results from studies using Chinese samples were not entirely consistent with the Schwartz theory of values, our analysis of the circumplex structure in this culture adds a particularly relevant piece of evidence to the degree of cross-cultural generalizability (and limitations) of this theory.

The Schwartz value theory

The Schwartz value theory (Schwartz, 1994; Schwartz & Bilsky, 1990) is among the most investigated and empirically supported theories on values. Schwartz and Bilsky (1990) originally proposed a set of 10 values: universalism, benevolence, tradition, conformity, security, power, achievement, hedonism, stimulation and self-direction. The 10 values were allocated on two orthogonal higher-order dimensions: Openness-to-change versus conservation; and self-enhancement versus self-transcendence. Two questionnaires have been developed to operationalise the Schwartz values: the Schwartz values scale (SVS, Schwartz, 1992; Schwartz, 1994) and the Portrait Values Questionnaire (PVQ, Schwartz et al., 2001). A short version of the PVQ has been included in the European Social Survey (ESS) since 2002 (Davidov et al., 2008).

Schwartz and Bilsky (1990) suggested that the relationship among the 10 values can be described by the quasi-circumplex structure (see Figure 1). The circular structure reflects the strength of relationships among variables that first decrease and beyond a certain point increase again when moving around the circle. The strength of relationship, in turn, signifies the conceptual similarity of the variables. For instance, the close distance between power and achievement in Schwartz' theory reflects both their high correlation as well as the similarity with regard to their underlying motivational goals. By contrast, the opposing location of conformity and self-direction reflects their negative relationship, thereby highlighting possible intrapersonal motivational

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[1]One sample was from Hong Kong, one of China's special administrative regions.
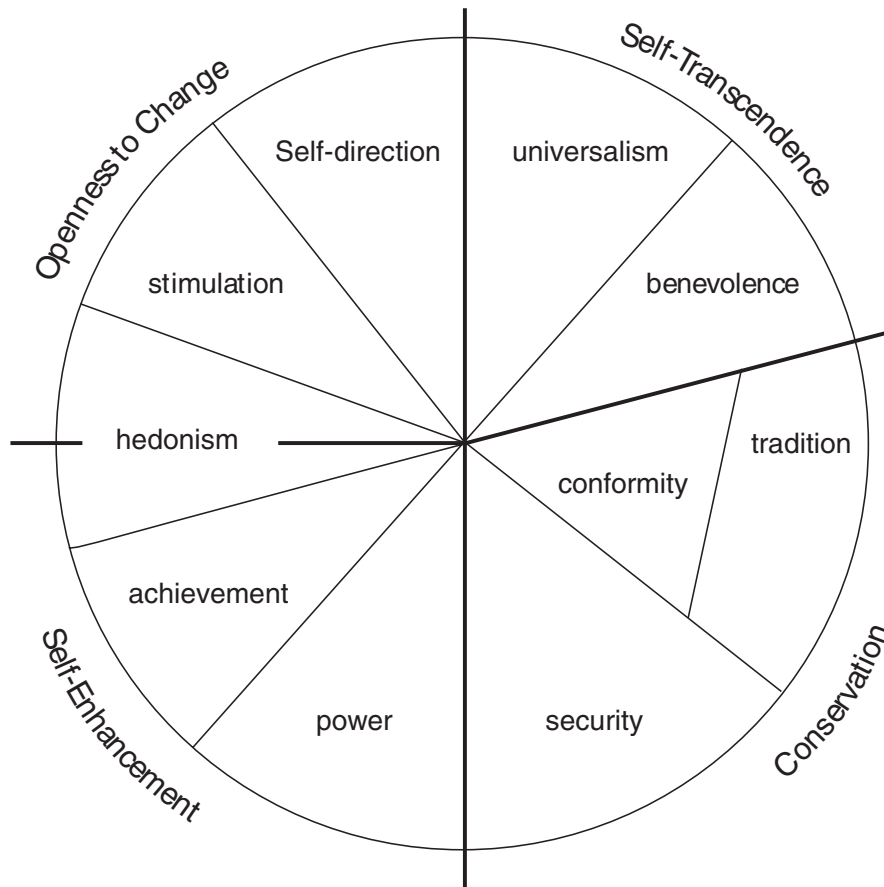
Figure 1. Theoretical model of the Schwartz values (Bilsky & Schwartz, 1994, printed with permission).

goal-conflicts which emerge if a person emphasises both values at the same time. Whereas the strict circumplex structure implies equal distances between the adjacent variables, a quasi-circumplex structure allows the variables to be unequally spaced on the circumference (Guttman, 1954). Schwartz and Bilsky (1990) assumed that cultures might differ in the importance given to values, but the relationship between the values (being either adjacent or opposed to each other in the circular structure) remained invariant.

Meta-analytic evidence on the quasi-circumplex structure of values

Numerous studies have investigated the assumed cross-cultural validity and generalizability of the quasi-circumplex model. With regard to European countries, Bilsky et al. (2011) analysed 71 population samples from 32 countries included in the ESS. The vast majority of the samples showed the expected circular structure of human values with minor deviations. The authors also found that with increasing societal development in a country, deviations of the observed value structure from the theorised circular structure decreased.

Schwartz (1994) collected data from 97 samples gathered in 44 countries worldwide and investigated the circular structure. As a result, most samples fitted well to the theorised circular structure, but samples from Hebei, Shanghai and Taiwan were among the ones with the highest number of misplaced values, together with other countries (Estonia, India, Malaysia, Mexico, Turkey and Zimbabwe). Both Bilsky et al. (2011) as well as Schwartz (1994) used multidimensional scaling for their analyses, a method that has been criticised because results regarding fit to the theorised structure relies on subjective interpretation of the researcher rather than on established fit indices (Steinmetz et al., 2012).

Steinmetz et al. (2012) applied a meta-analytic structural modelling approach to test the validity of the quasi-circumplex structure and its generalizability across cultures. The authors analysed 300 correlation matrices gained from 88 studies that had been conduced in 65 countries including the data stemming from the ESS. Based on cluster analyses of the correlation profiles, the authors sorted the samples into groups with similar correlation patterns. They found eight clusters of correlation matrices. Circumplex analyses in these clusters resulted in different approximations to the theorised structure, and

TABLE 1
References included in the meta-analysis by Steinmetz et al. (2012) and fit indices for the circular structure

Author/year	Location	Measurement	N	Mean age	RMSEA	CFI
Chen et al. (2009, dataset 1)	China	SVS	199	21	.065	.978
Chen et al. (2009, dataset 2)	China	SVS	204	21	.111	.938
Hofer, Busch, Bond, Campos, et al. (2010)	Hong Kong	SVS	112	36	.133	.934
Hofer, Busch, Bond, Kärtner, et al. (2010)	China	SVS	171	36	.063	.981
Maercker et al. (2009)	China	PVQ-40	128	32	.000	1.000
Vignoles et al. (2010)	China	PVQ	227	16	.060	.974

Note: RMSEA = root mean squared error of approximation; CFI = comparative fit index; PVQ = portrait values questionnaire; SVS = Schwartz values scale.

clusters with a better approximation generally contained matrices from European countries.

Chinese samples were assigned to three different clusters, all of which were culturally diverse, rendering these results nearly impossible to interpret. Moreover, the three clusters to which Chinese samples were assigned were among the ones which corresponded least to the prototypical structure. One of these clusters clearly failed to fit the circular structure, as values formed a two-factor solution: Openness-to-change and self-enhancement were positioned opposite to conservation and self-transcendence. However, as aforementioned, this cluster not only contained Chinese data sets but also samples from other countries (Steinmetz et al., 2012).

In a theoretical review, Fischer (2013) discussed possible factors which might affect the circular structure of values. Based on the existing evidence he formulated the "motivational differentiation" hypothesis, according to which the societal development process separates self-expressive motivations from traditional and protective motivations. This process results in a clearer differentiation and specific importance of self-expressive motivations, thereby decreasing the importance of the opposing protection and conservative social values. During this process, the circular structure of values becomes more evident, as values move apart towards the periphery of the circle (Fischer, 2013, Figure 5.11, p. 258).

Detailed descriptions of current evidence on values in China exist (see Kulich & Zhang, 2010, for a review), but most of the evidence has been published in Chinese language, is not based on empirical studies and/or uses emic (i.e. culturally specific and not universal) concepts of values. According to this evidence, the Confucian values are still highly esteemed in contemporary China (Zhai, 2008). On the other hand, the cultural revolution and the rapidly growing economy have led to important shifts in values (Kulich & Zhang, 2010). This value shift, which is in line with Fischer's (2013) theory of motivational differentiation, is most pronounced in younger generations (Guo, 2008).

In summary, evidence on the circular structure of Schwartz' values in China is weak and the available evidence shows deviances from the theorised circular structure. However, the studies by Schwartz (1994) and Steinmetz et al. (2012) merely provide an overall view on the "world map of values" but lacked detailed information about the particular situation in China. The meta-analysis by Steinmetz et al. (2012) is particularly difficult to interpret because Chinese samples were mixed together with other countries. Hence, this study aims to shed light on the question whether the circular structure of values can be replicated in China. Studying the Schwartz value theory in China might offer particularly relevant evidence on its universality and usefulness in describing people's value orientations in a rapidly changing environment.

STUDY 1

Procedure and samples

Data for the first part of this study was taken from the meta-analysis by Steinmetz et al. (2012). Five datasets from mainland China and one from Hong Kong were identified, stemming from five references (Chen, Bond, Chan, Tang, & Buchtel, 2009; Hofer, Busch, Bond, Campos, et al., 2010; Hofer, Busch, Bond, Kärtner, et al., 2010; Maercker et al., 2009; Vignoles et al., 2010). Descriptive characteristics of the included studies are presented in Table 1. Four studies had used the SVS and two had used the PVQ. For one study it was not possible to identify whether it had used the PVQ-40 or the shorter 21-items version.

Statistical analysis

For re-analysing the samples from the Steinmetz et al. (2012) meta-analysis, we used the same statistical procedure which is based on the circular stochastic process model described by Browne (1992). As described in detail by Steinmetz et al. (2012), the starting point of this analysis is the so-called Fourier series correlation function, which estimates how the correlation of two variables relates to the polar angle between them (Fabrigar, Visser, & Browne, 1997). If the angle between two variables is 0°, their correlation coefficient is 1. When moving around the
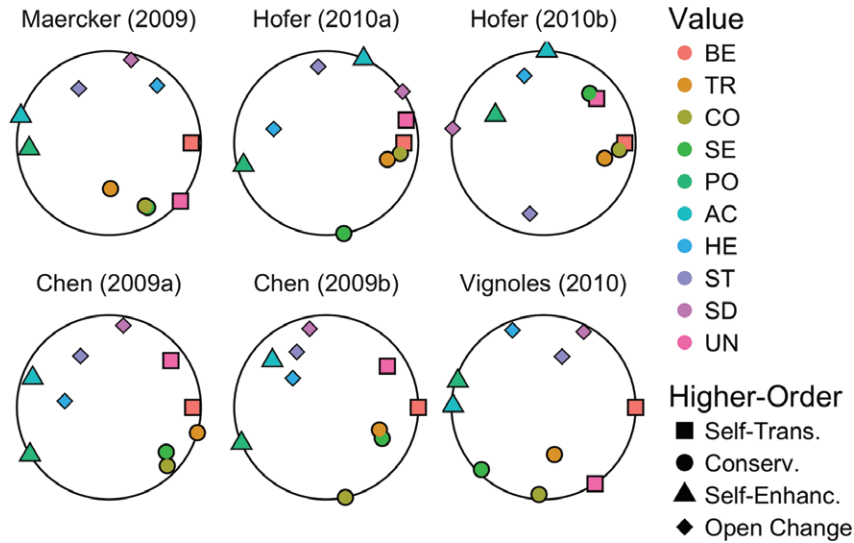
Figure 2. Circumplex plots of the samples included in the meta-analysis by Steinmetz et al. (2012). *Note*: BE = benevolence; TR = tradition; CO = conformity; SE = security; PO = power; AC = achievement; HE = hedonism; ST = stimulation; SD = self-direction; UN = universalism.

circle, correlations decrease with increasing polar angles. At 90°, the correlation is 0 and then starts to be increasingly negative until reaching 180°. After 180°, correlations start to increase again.

For this study, we used the open source software R (R Core Team, 2015) and the CircE package (Grassi, Luccio, & Di Blas, 2010). CircE requires the specification of free parameters used in the Fourier series (Browne, 1992, for a detailed explanation). With increasing number of free parameters, the model is able to fit a wider range of possible correlation functions to the data (Fabrigar et al., 1997). We used between 1 and 10 free parameters and selected the value providing the best fit to the observed correlations. For each of these model fits, we generated initial values using principal factor analysis (PFA) and allowed the minimum correlation to be a free parameter of the model. CircE provides indices for goodness-of-fit of the correlation matrices to a quasi-circumplex structure. Two indices for model fit were used in this study: Bentler's comparative fit index (CFI) and the root mean squared error of approximation (RMSEA). Steinmetz et al. (2012) suggest that CFI values near .95 and RMSEA values below .06 are indicative of good fit to the expected quasi-circumplex.

Results

Model fit indices are displayed in Table 1. Plotted results of the quasi-circumplex model estimation for each sample can be found in Figure 2. In each sample, benevolence was fixed at 0°, and the other dots represent the angle between the respective value and benevolence. In order to illustrate the theoretically assumed pattern of correlations when moving around the circle, we used colours: Similar colours represent higher correlations (and thus smaller

angles) according to the Schwartz value theory. Moreover, we used four different figures in order to illustrate the higher-order factors: Benevolence and universalism both have a square symbol in the plot with slightly different shapes of red colour. Tradition, conformity and security are all characterised with a round symbol and colours ranging from brown to green. Power and achievement are both represented as greenish triangles, and the three values belonging to openness-to-change are rhombic ranging from blue to purple.

Most of the samples graphically showed the theoretical circular structure of values but failed to achieve the required threshold of the CFI and RMSEA, with the exception of Maercker et al. (2009). In Hofer, Busch, Bond, Campos, et al. (2010) and Hofer, Busch, Bond, Kärtner, et al. (2010), values from different higher-order factors fell together into the same area of the circumference, the others showed more or less the theoretical order of values. RMSEA was considerably higher than the ones found by Steinmetz et al. (2012) in the clusters with good model fit. However, none of the samples showed the two-factor structure described in the cluster containing Chinese samples in Steinmetz et al.'s (2012) meta-analysis.

Discussion

In Study 1, we re-analysed six Chinese correlation matrices of Schwartz values included in the meta-analysis by Steinmetz et al. (2012). The six Chinese samples fitted worse to the prototypical structure than Steinmetz et al.'s (2012) clusters with good model fit. However, the graphical representation revealed that the positioning of the values was theoretically more appropriate than in the clusters

to which the six Chinese samples had been assigned in Steinmetz et al.'s (2012) meta-analysis. None of the samples showed the two-factor structure described by Steinmetz et al.'s (2012). One possible explanation is that, although the clusters contained samples with relatively homogeneous correlation profiles, they may still have contained substantial heterogeneity. This problem is common in meta-analysis (Viechtbauer, 2007). Even attempts to reduce heterogeneity by dividing the sample into subgroups, as it was done by Steinmetz et al. (2012), is no complete remedy. As a consequence, samples from countries other than China may have influenced the overall test of the model and the results from the Chinese samples have been undetected.

According to our results, the contrast between the inadequate fit and graphical match to the theory may be due to the rather low sample size of the studies. As the exact position of a variable in the circumplex is affected by both measurement error and sampling error, low sample size may have resulted in deviations from the ideal structure at the level of fit indices. For these reasons, we conducted a further study with considerable sample size, in order to gain more reliable results on the quasi-circumplex structure of values in China.

STUDY 2

Procedure and sample

Empirical data for the second study were gathered within the Bochum Optimism and Mental Health (BOOM) research program, a large cross-cultural research project directed from Germany which aims to identify predictors of mental health and well-being. Samples from four universities in China were included (Capital Normal University, North China University of Science and Technology, Nanjing University and Shanghai Normal University). Primarily first semester students were included. $N = 10,652$ students participated in this study, 62% of which were female. The mean age was 19.9 years ($SD = 2.0$). Less than 1% were between 14 and 16 years old, 48.7% were between 17 and 19 years old, 49.45% between 20 and 25 years old and 1.5% older than 25. Regarding disciplines, 27% were from the humanities, 23% from architecture and engineering, 20% from mathematical and natural sciences, 9% from information and communication technologies, 8% from management and business, 5% from graduate school, 4% from politics and law and 4% from medicine. In the four Chinese sites, 59% participated in grouping-online sessions supervised by research investigators and 41% participated in paper-pencil testing. Previous research has shown that assessment across different administration modes were equivalent (Cieciuch, Davidov, Oberski, & Algesheimer, 2015).

Measures

We used the Chinese version (Maercker et al., 2009) of the PVQ-21 (Schwartz et al., 2001) to measure values. This questionnaire provides 21 portraits of persons consisting of two sentences. Respondents rate how similar they feel the portrayed person is to them on a 6-point scale from 1 (*very similar*) to 6 (*very dissimilar*).

Statistical analysis

The analysis of the quasi-circumplex structure was conducted at the level of items as well as using the sum scores of items which theoretically belong to the same value category (e.g. benevolence). The reason is that the 10 values can be understood as aggregates of more specific values to which the items refer to. Hence, the quasi-circumplex structure may be more appropriate to either of these abstraction levels. Correlation matrices were computed for both levels. All missing responses were dealt with using listwise deletion. Since fewer than 1% of responses were missing, this assumption seems unlikely to have an effect on our results. Using listwise deletion was important in order to gain one single number of participants, since CircE requires a single N for the correlation matrix. Pairwise deletion, in contrast, would have resulted in different Ns for each correlation.

We applied the same quasi-circumplex model estimation procedure described above for both item and sum score-level. Moreover, a communality index was calculated, which is a measure of the degree to which the correlations between values are predicted by their angle. The radii in the graphic display indicate communality indices. They range from zero at the origin to one at the perimeter, with higher values indicating that the value orientation's angle on the quasi-circumplex makes accurate predictions about its correlations.

Results

The correlation matrix resulting from the 21 items and the 10 value categories can be found in the Appendix. Indices of fit of the correlation matrices to a quasi-circumplex structure were satisfactory with CFI = .918 and RMSEA = .058 at the item level and CFI = .990 and RMSEA = .045 at the sum score-level. Figure 3 visualises the circular representations of the item and sum score correlation matrices. We fixed the angle of benevolence at 0°. Locations inferred from sum score correlation matrices were labelled using circles and locations inferred from item-level correlations were labelled using triangles. Value categories are denoted using colours, making it easy to observe whether the item and sum score-level representations were consistent with one another.

The inferred representations largely adhere to Schwartz's higher-order categories. At the sum score
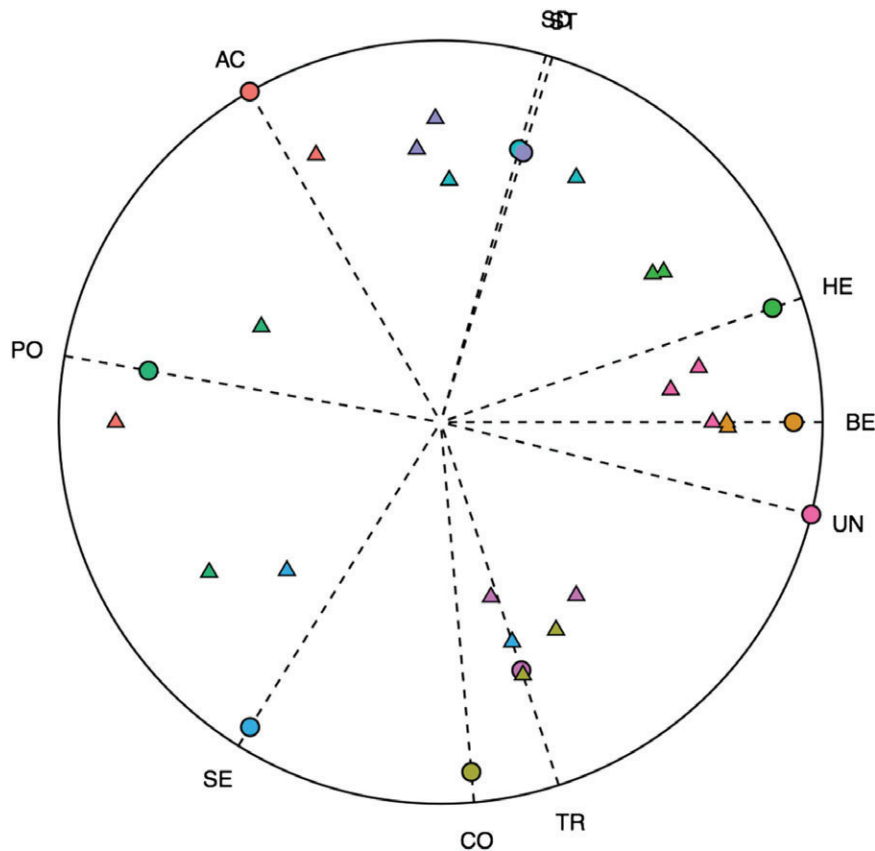
Figure 3. Angles and communality indices at the sum score levels. *Note*: UN = universalism; BE = benevolence; TR = tradition; CO = conformity; SE = security; PO = power; AC = achievement; HE = hedonism; ST = stimulation; SE = self-direction. The larger circles denote fits from the value sum scores and the smaller triangles the fits from the items.

level, groups of values emerge which correspond to self-transcendence (benevolence and universalism), openness-to-change (hedonism, stimulation and self-direction) and conservation (security, conformity and tradition). Likewise, the close proximity of power and security conforms to the self-enhancement category. Hedonism falls between self-transcendence and openness-to-change rather than being shared between openness-to-change and self-enhancement. These sum score-level patterns are also present at the item level. While the item-level angles differ considerably from the sum score-level angles, none of the item corresponding to a particular higher-order category falls into the space of another higher-order category, with the exception of one power item which comes very close to security.

Discussion

Using a large student sample, the quasi-circumplex structure of Schwartz values was analysed in mainland China at item- and sum score-level. Model fits were satisfactory but somewhat better at the sum score than at the item level. One explanation would be that measurement

error was higher at the item level and leads to deviations from the hypothesised structure. The most important deviance from the theoretical structure is the placement of hedonism. Rather than falling between stimulation and achievement, hedonism is located next to benevolence and universalism at both the sum score and item levels. We also see benevolence and universalism swapped at the sum score level, but not this is not replicated at the item level. Taken together, these results provide support for the quasi-circumplex structure of Schwartz values in China, thereby confirming the importance of sample size.

GENERAL DISCUSSION

In this paper, we tested the quasi-circumplex structure of human values postulated by Schwartz (1992, 1994) in China. In the first study, we re-analysed six Chinese samples included in the meta-analysis by Steinmetz et al. (2012). Most samples failed to achieve the established thresholds of model fit, but the graphical representation was still acceptable. Due to the small sample size, measurement and sampling error might have led to random deviations from the ideal position and, thus, decreased

the fit in these six studies. In the second study, we analysed a new very large sample of college students. In this study, model fit was satisfactory and the pattern of the values largely corresponded to the theoretical structure. As the only exception, hedonism was misplaced and fell next to the self-transcendence values of benevolence and universalism.

Testing the prototypical structure of Schwartz values across cultures, and particularly in contexts which contrast Western culture, is essential. So far, evidence from China gave rise to the assumption that values deviated from the prototypical structure as postulated by Schwartz (1992, 1994). In his own study, Chinese samples were the ones which showed most "misplaced" values in the circular structure. And in the meta-analysis by Steinmetz et al. (2012), Chinese samples fell into clusters which completely failed the quasi-circumplex structure, but the fact that these samples were mixed with other countries obfuscated their specific patterns of correlations. Considering the size and global relevance of Chinese culture, such inconclusive evidence implies a challenge to the assumption of universality of the circular structure. If the Schwartz values repeatedly and consistently failed the circular structure in China across several samples, the assumption of universality of the circular structure would be in question. However, our results confirm the generalizability of the circular structure in China, which is an important piece of evidence to existing literature.

Fischer (2013) hypothesised that the societal development process separates self-expressive motivations from traditional and protective motivations, which results in a clearer differentiation and specific importance of self-expressive motivations. China has undergone far-reaching economic, social and cultural changes in the past decades (Kulich & Zhang, 2010), and particularly young people increasingly emphasise Western values of self-direction and stimulation (Zhai, 2008). On the other hand, Confucian values are still highly esteemed in contemporary China (Kulich & Zhang, 2010).

Against this Chinese cultural background, the finding that hedonism fell close to universalism and benevolence (which together form the higher-order factor of self-transcendence) is particularly relevant, and one can only conjecture about its meaning. In Chinese Confucian tradition, social relations, harmony and respect for one's parents, elders and ancestors, is highly valued (Kulich & Zhang, 2010). Hence in China, hedonism—defined in terms of enjoying oneself—might be more focused on shared and collective activities and caring for others than in terms of an individualistic fulfilment of own pleasures and interests. If replicated in other studies, this finding suggests that in fact there are slight cross-cultural differences in the way how value orientations (in terms of motivational goals) relate to each other in terms of similarity or dissimilarity between them.

Limitations

Limitations of the second study concern the sample and the measurement. Results might have been different using a representative sample. Second, the study was based on the PVQ-21, which has been criticised for different reasons (e.g. Knoppen & Saris, 2009). One critique refers to the fact that the PVQ items include two statements in one item, which might affect responses. This issue has been addressed in the questionnaire which was designed for testing the revised Schwartz value theory (Schwartz et al., 2012). The PVQ-21 was chosen for reasons of parsimony because it was part of a large cross-cultural research program on predictors of mental health and well-being which included several questionnaires. Nonetheless, the fact that the circular structure was replicated despite these known problems with the PVQ-21 speaks for its usability.

Results of this study need to be replicated using the refined Schwartz value theory (Schwartz et al., 2012). The refined theory has already been tested only recently in China (Li, 2016), and the circular structure was supported in this study. However, Li (2016) analysed the data using multidimensional scaling, which has been criticised because it does not provide indices for fit of the data to the theoretical circular structure but rather relies on the subjective interpretation of the spatial locations of items in a two-dimensional space (Steinmetz et al., 2012). Thus testing the refined theory using quasi-circumplex model estimation remains to be done. Data for this study were collected during the time when the refined Schwartz theory was published, thus future research should use the new 57-item questionnaire and analyse the data using circumplex model estimation.

CONCLUSIONS

The present paper adds an important piece of evidence to the already existing empirical evidence on the universality of the Schwartz value theory. Our results show that large meta-analyses such as the one by Steinmetz et al. (2012) are important for drawing overarching conclusions which summarise the evidence from many different pieces of the puzzle; nevertheless, these studies use such high levels of abstraction that they might obfuscate very relevant contextual information. Hence well-designed, culturally specific studies are needed in order to complement the big picture by providing a higher level of resolution, which allows for distinguishing very relevant details and reveal cultural particularities which otherwise would be obscured.

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APPENDIX

TABLE A1.
Correlations at item level

	UN_1	UN_2	UN_3	BE_1	BE_2	CO_1	CO_2	TR_1	TR_2	SE_1	SE_2	PO_1	PO_2	AC_1	AC_2	HE_1	HE_2	ST_1	ST_2	SD_1
UN_2	.38																			
UN_3	.40	.41																		
BE_1	.41	.44	.51																	
BE_2	.39	.41	.56	.59																
CO_1	.31	.36	.32	.31	.28															
CO_2	.26	.31	.37	.36	.43	.37														
TR_1	.22	.34	.22	.21	.20	.30	.29													
TR_2	.15	.19	.29	.24	.23	.29	.32	.23												
SE_1	.14	.11	.12	.09	.12	.24	.29	.23	.22											
SE_2	.29	.30	.43	.37	.37	.29	.39	.19	.28	.25										
PO_1	.03	.01	.00	-.02	.02	.03	.15	.01	.11	.25	.15									
PO_2	.14	.15	.21	.20	.28	.19	.42	.15	.31	.33	.30	.29								
AC_1	.32	.27	.26	.29	.27	.21	.27	-.03	.16	.23	.29	.27	.33							
AC_2	.24	.25	.32	.36	.35	.24	.42	.07	.21	.22	.43	.31	.43	.51						
HE_1	.26	.31	.33	.38	.35	.18	.29	.22	.18	.21	.31	.13	.25	.26	.29					
HE_2	.26	.25	.38	.38	.40	.16	.29	.12	.26	.16	.31	.13	.26	.28	.32	.50				
ST_1	.30	.34	.31	.34	.32	.19	.21	.06	.12	.12	.23	.18	.22	.40	.33	.32	.36			
ST_2	.18	.22	.26	.27	.24	.07	.19	.04	.15	-.01	.23	.19	.26	.29	.31	.25	.32	.56		
SD_1	.24	.28	.26	.28	.23	.12	.12	.05	.11	.06	.18	.22	.18	.34	.24	.21	.24	.45	.41	
SD_2	.26	.32	.32	.39	.32	.19	.23	.21	.17	.09	.25	.09	.24	.26	.32	.37	.32	.38	.36	.36

Note: UN = universalism; BE = benevolence; TR = tradition; CO = conformity; SE = security; PO = power; AC = achievement; HE = hedonism; ST = stimulation; SE = self-direction.

TABLE A2.
Correlations at sum score level

	UN	BE	CO	TR	SE	PO	AC	HE	ST
BE	.65								
CO	.50	.46							
TR	.38	.32	.46						
SE	.37	.32	.45	.37					
PO	.14	.16	.28	.23	.40				
AC	.41	.41	.38	.15	.42	.47			
HE	.44	.49	.31	.29	.36	.28	.38		
ST	.38	.37	.21	.13	.20	.30	.43	.41	
SD	.43	.41	.23	.21	.22	.27	.40	.40	.55

Note: UN = universalism; BE = benevolence; TR = tradition; CO = conformity; SE = security; PO = power; AC = achievement; HE = hedonism; ST = stimulation; SE = self-direction.