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This is the accepted version of the following article: Döring, A.K., Schwartz, Shalom H., Cieciuch, J., Groenen, Patrick J.F., Glatzel, V., Harasimczuk, J., Janowicz, N., Nyagolova, M., Scheefer, E. R., Allritz, M., Milfont, Taciano L. and Bilsky, W. (2015) Cross-cultural evidence of value structures and priorities in childhood, *British Journal of Psychology,* 106, pp. 675-699, DOI: 10.1111/bjop.12116, which has been published in final form at https://dx.doi.org/10.1111/bjop.12116

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To appear in: *British Journal of Psychology*

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The work of Anna K. Döring was partly supported by the German Academic Exchange Service (DAAD), the work of Shalom H. Schwartz was partly supported by the International Socio-Cultural Laboratory of the Higher School of Economics, Moscow, and the work of Jan Cieciuch and Justyna Harasimczuk was supported by Grants (2011/01/D/HS6/04077) from the Polish National Science Centre.

Abstract

We broaden the developmental focus of the theory of universals in basic human values (Schwartz, 1992) by presenting supportive evidence on children's values from six countries: Germany, Italy, Poland, Bulgaria, the USA, and New Zealand. 3,088 7-11-year-old children completed the Picture-Based Value Survey for Children (PBVS-C, Döring et al., 2010). Grade 5 children also completed the Portrait Values Questionnaire (PVQ, Schwartz, 2003). Findings reveal that the broad value structures, sex-differences in value priorities, and pan-cultural value hierarchies typical of adults have already taken form at this early age. We discuss the conceptual implications of these findings for the new field of children's basic values by embedding them in the recent developmental literature.

Keywords: children's values, value structures, value priorities, value hierarchies, middle childhood

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There is enormous interest in children's values around the world. The English term 'children's values' yields 1,380,000,000 hits in a Google search, the French 'valeurs des enfants' yields 24,900,000, and the Spanish 'valores de los niňos' yields 52,400,000[1]. Parallel terms in other languages also yield large numbers of hits. The topics in the numerous sources cover a wide bandwidth, ranging from political discussions to guidelines for value transmission and value education.

The issue of transmitting shared values to future generations is central for every culture. Internalizing of values by children promotes social order in families and societies and guarantees the continuity of culture (see Kochanska, 1994). Considering the widespread public interest in children's values, surprisingly few studies in the scientific psychological literature explicitly address this topic. A search of PsycInfo identifies only 10 articles with 'children's values' in the title and only 49 articles with 'children's values' somewhere in the text. The wide gap between interest in children's values and scientific investigation of them makes a scientific journey into this largely untapped field a highly promising and timely endeavor.

For this endeavor, we adopt the most prominent values theory in psychological research, Schwartz's (1992, 1994) theory of universals in basic human values. Schwartz defined values as desirable, trans-situational goals, varying in importance, that serve as guiding principles in people's lives. He identified a set of ten broad, basic values postulated to include the value terms that are recognized across all cultures. Each basic value expresses a distinct motivational goal. Empirical research confirmed that each of a large number of single items that are viewed as values across cultures could be subsumed under the heading of one of the following 10 basic values: universalism, benevolence, tradition, conformity, security, power, achievement, hedonism, stimulation, and self-direction. Column 1 in Table 1 lists each basic value, defined in

terms of its broad motivational goal. Value items that represent a basic value share the same motivational goal.

[Table 1 about here]

Every value-based action expresses the motivational goal of one or more values. The motivational goals of various values may be mutually attainable or contradictory. Consequently, actions that serve one value have consequences that serve related values but that conflict with or oppose some other values. For example, conformity and security values express mutually compatible motivations. Conformity refers to restraint of impulses and actions so as not to violate rules or upset others. This motivational goal is compatible with the striving for safety and stability that motivates security values. Hence, actions that serve conformity values typically serve security values too. In contrast, actions that serve conformity and security values typically conflict with and oppose the striving for excitement and adventure that motivates stimulation values.

Based on the motivational compatibility and conflict among the ten values, Schwartz (1992) derived the circular motivational structure of values in Figure 1. The closer any two values are to each other going around the circle, the more compatible their motivational goals. The more distant any two values, the more opposed or in conflict their motivational goals. Two orthogonal oppositions further describe the circular value structure shown in Figure 1: Self-Transcendence (including universalism and benevolence) versus Self-Enhancement (including power and achievement), and Conservation (including tradition, conformity, and security) versus Openness to Change (including stimulation, self-direction, and hedonism).

[Figure 1 about here]

Schwartz's theory has proven a highly fruitful framework for studies in adulthood. The circular structure of values has been supported empirically in more than 300 samples from around

the globe (e.g., Schwartz, 2006a). Thus, it identifies possible universals in the content and structure of human values. However, *value priorities*, the importance people ascribe to certain values as guiding principles in their lives, vary substantially across countries (Schwartz, 2007). Nonetheless, Schwartz and Bardi (2001) found a pan-cultural hierarchy of values underlying the differences between most groups: Benevolence, self-direction, and universalism values were rated consistently most important in the large majority of cultures, whereas power, tradition, and stimulation values were rated least important. Security, conformity, achievement, and hedonism fell in between.

Differences in value priorities have also been observed between men and women. Schwartz and Rubel (2005) explored *sex-differences* in value priorities across cultures and found that men consistently attribute more importance than women do to power, stimulation, hedonism, achievement, and self-direction values; the reverse was true for benevolence and universalism values and, less consistently, for security values. Thus, there seem to be near-universal patterns of adult value structures and value priorities.

From a developmental perspective, these consistent findings raise the question of how these near-universal patterns develop and at what point in life they are established. So far, these questions remain unanswered. Several studies speak to Schwartz's values in adolescence (e.g., Barni & Knafo, 2012; Daniel, Schiefer, Möllering, Benish-Weisman, Boehnke, & Knafo, 2012; Knafo & Schwartz, 2003; Schwartz, 2012; Schwartz, Melech, Lehmann, Burgess, Harris, & Owen, 2001), and a handful of studies treat values in late childhood (Bilsky & Bubeck, 2004; Bilsky et al., 2013; Cieciuch, Döring, & Harasimczuk, 2013; Cieciuch, Harasimczuk, & Döring, 2010; Cieciuch, Harasimczuk, & Döring, 2012; Döring, 2010; Döring, Blauensteiner, Aryus, Drögekamp, & Bilsky, 2010; Knafo & Spinath, 2011). Even less has been published on value structures and priorities in middle childhood, that is, among elementary-school children. We

located only three, very recent studies of single samples in Israel (Knafo & Spinath, 2011), Germany (Döring et al., 2010), and Poland (Cieciuch et al., 2010), attesting to the very beginning of exploration in this field.

The paucity of relevant past research is probably due to an assessment-related barrier: The currently most widely employed values instrument, the Portrait Values Questionnaire (PVQ: Schwartz et al., 2001; Schwartz, 2003), is too difficult and unsuitable for children who are younger than approximately ten years (see Döring, 2010 for details). To interpret the PVQ, researchers infer respondents' values from their responses to portraits, like the following, that describe the importance of a particular value to a person:

> She thinks it is important that every person in the world should be treated equally. She believes everyone should have equal opportunities in life. (item that measures universalism)

Respondents are asked to compare themselves to the person portrayed and to indicate how similar this person is to themselves. The PVQ relies heavily on the respondent's reading skills and ability for abstract thinking about personality. Children's thinking, in contrast refers to concrete objects and actions, as indicated by labels given to developmental stages in childhood. In this vein, the period which covers the age span of middle childhood (i.e., about 7 to 11 years, Harter, 1999) has been called the stage of "concrete operations" in the Piagetian tradition..

Values are part of the self-system; they transcend specific situations and underlie actions and are thus a type of personality disposition (Bilsky & Schwartz, 1994; Feather, 1992). At the stage of middle childhood, the child has developed a basic understanding of who he or she is (e.g., Eder, 1989, 1990; Eder & Mangelsdorf, 1997; Harter, 1996; Thompson, Meyer, & McGinley, 2006). Specifically, children begin to develop the cognitive capacity for abstract thinking and to recognize sameness behind actions (e.g., Harter, 1996, 1999). For example, they

may understand that sharing biscuits with another hungry child and assisting the teacher to tidy up a messy room can both be driven by helpfulness.

Directly assessing values through self-reports rather than relying on inferences based on observation of behavior or on ratings by significant adults in the child's life provides unique information not otherwise available (see La Greca, 1990). Scholars have traditionally underestimated children's ability to provide direct information about various aspects of their own personality (see Eid & Diener, 2006 for a historical overview). This assumption was first challenged by pioneering research on the most prominent personality characteristics – the Big Five and academic self-concept – that showed that children not only have a basic understanding of their personality, but are also able to provide meaningful self-reports (Eder, 1989, 1990; Eder & Mangelsdorf, 1997; Harter, 1996). Recently, this view has also changed with regard to values. In 2010, Döring and colleagues introduced a new measure that provided access to children's self-reports of their values for the first time: the Picture-Based Value Survey for Children (PBVS-C). The first studies conducted with the PBVS-C (e.g., Cieciuch et al., 2010, 2013; Döring et al., 2010) have provided new insights into the unexplored field of children's values and for the first time showed that German and Polish children structure their values in accordance with Schwartz's circular model.

The current research employed the PBVS-C to assess the self-reported values of over three thousand children from six countries. By integrating the developmental aspects of Schwartz's theory with the recent developmental literature on children's motivational goals, we seek to determine whether, by middle childhood, children hold a differentiated conception of values similar to that in adulthood. If values indeed exhibit a consistent pattern at this early age, this same pattern should be observable across cultures. The current research presents evidence from three culturally distinct world cultural regions (Inglehart & Baker, 2000; Schwartz, 2006b):

(1) West Europe, represented here by Germany and Italy, (2) East Europe, represented here by Poland and Bulgaria, and (3) English-speaking, represented here by the USA and New Zealand. Across all these cultures, we expected highly similar patterns of (1) value structures, (2) value hierarchies, and (3) sex-differences in value priorities, as elaborated next.

Value structures

Adult samples in countries around the world exhibit the circular structure of ten motivationally distinct values, as noted above. Studies in middle and late adolescence reveal that this structure is already present at younger ages (e.g., Barni & Knafo, 2012; Knafo & Schwartz; 2003; Schwartz, 2012). The few researchers who addressed values in late childhood (around ages 10-12) adopted the established rationale in personality development that personality structures progressively differentiate as individuals grow older (e.g., Eder, 1990; La Greca, 1990). Consequently, they expected much less differentiated value structures in late childhood. They were therefore amazed to find structures that were only slightly less differentiated (Bilsky et al., 2013, found eight distinct values, Bubeck & Bilsky, 2004, found nine distinct values, and Döring, 2010, found ten distinct values). This suggested that the onset for differentiation must lie earlier in life.

Inspired by these findings, Döring, et al. (2010) sought to examine value structures in middle childhood. Because the PVQ used in the first studies was unsuited to children of this age, Döring, et al. (2010) developed the PBVS-C, which they administered to middle childhood samples of German and Polish children. They too found that value structures were largely in line with Schwartz's circular model (Bilsky et al., 2013, found eight distinct values, Cieciuch et al., 2010 and Cieciuch et al, 2013 found seven distinct values, and Döring et al., 2010 found ten distinct values)[2]. In all value structures, the oppositions between the higher order values of self-transcendence versus self-enhancement and of conservation versus openness to change were

present. The first opposition refers to the conflict between values that emphasize transcending own interests for the sake of others versus values that emphasize pursuit of own self-interests. The second opposition refers to the conflict between values that emphasize self-restriction, order and avoiding change versus values that emphasize readiness for new ideas, actions, and experiences. We expected this basic value structure of higher-order values to emerge in our analyses, and explored whether further differentiation within the higher-order values might emerge.

Value hierarchies

Individual differences in life experiences, social locations, enculturation, and genetic heritage give rise to individual differences in value priorities or hierarchies. As noted, however, Schwartz and Bardi (2001) found much pan-cultural similarity in the value hierarchies of national groups. They explained the consistently high position of benevolence and universalism values in the value hierarchies observed across countries as due to the key functions of these values. The most critical function for all societies is to promote and preserve cooperative and supportive relations among group members. These values insure the smooth functioning of groups even in the absence of external sanctions. Self-determination theory (Deci & Ryan, 1985) also emphasizes the centrality of relatedness and community, describing them as among the major psychological needs whose fulfillment is intrinsically satisfying. In contrast, the pursuit of power and to a lesser extent achievement values in the Schwartz theory, and of wealth, fame, and attractiveness in self-determination theory, is likely to disrupt the smooth functioning of social groups. Hence, these values exhibit low pan-cultural importance.

We posit that these same principles shape the explicit socialization efforts intended to transmit values to children and the contingencies that influence the values children internalize as they adapt to the customs, practices, norms and expectations they encounter in daily life. Hence, we expect self-transcendence values to rank highest and self-enhancement values lowest among

children, just as they do among adults. We expect openness to change and conservation values to fall in the middle of the value hierarchies. The middle childhood samples in one German and one Polish study exhibited such a hierarchy (Döring et al., 2010; Cieciuch et al, 2012). Assuming this value hierarchy is shared across cultures, we expect to find it in our samples from Italy, Bulgaria, the USA, and New Zealand too.[3] From the viewpoint of what children strive to achieve, middle childhood has been conceptualized as a fairly homogeneous period (e.g., Erikson, 1963). We therefore expect relative stability in value hierarchies from age seven to age 11.

Sex-differences in value priorities

Sex differences in values and other personality attributes are generally small, but many are consistent (e.g., Costa, Terracciano, & McCrae, 2001 for the Big 5; Schwartz & Rubel, 2005, for basic values). For the higher-order values, Schwartz and Rubel reported that, across 70 countries, males consistently attributed more importance to self-enhancement and openness to change values than females did, whereas females attributed more importance to self-transcendence and conservation values than did males.. Schwartz and Rubel explained their findings by drawing both on evolutionary psychology and on social role theory.

The developmental literature reports a similar pattern for children's motivational goals (see Blakemore, Berenbaum, & Liben, 2009 for an overview). Studies using questionnaire data from children and parents, time-use reports, behavioral observation, and such innovative approaches as analyzing children's letters to Santa Claus reveal that girls tend to prefer toys and games related to promoting close emotional bonds whereas boys tend to prefer toys and games related to demonstrating power and achievement. Thus, previous findings report consistent sex-differences related to Schwartz's motivational opposition of self-transcendence versus self-enhancement. The pattern is less consistent for the second opposition of conservation versus openness to change. Some studies with children indicate that exploring and risk-taking behavior

is more prevalent among boys than among girls and is encouraged more by parents (e.g., Morrongiello & Dawber, 1999). Other studies (e.g., Knafo & Spinath, in 2011) found no sex-differences in conservation versus openness to change values. We therefore expected to obtain consistent sex-differences in self-transcendence and self-enhancement values and smaller and less consistent differences in conservation and openness to change values.

Method

Samples

Samples of children aged seven to eleven responded in six countries: Germany, Italy, Poland, Bulgaria, USA, and New Zealand. Table 2 presents the age and sex composition of each sample. Data were gathered in elementary schools, described in more detail below.

Germany. 1,167 children (age: *M*=9.21, *SD*=1.21) from the Ruhr industrial region of Western Germany participated. The sample was heterogeneous with respect to parents' socioeconomic status and education, though not strictly representative.

Italy. 380 children (age: *M*=8.65, *SD*=1.18) from Milan participated. Data came from one state school, one religious school, and one Swiss school (where Italian and German were spoken). The sample covered a broad range of socioeconomic statuses.

Poland. 984 children (age: *M*=9.23, *SD*=1.23) from schools in Warsaw and its environs participated. The schools covered a wide range of socioeconomic statuses.

Bulgaria. 411 children (age: *M*=9.22, *SD*=1.43) from the small city of Russe near the Romanian border participated. They attended a state school.

USA. 63 children (age: *M*=9.10, *SD*=1.40) from State College, Pennsylvania, participated. Data were collected in private schools with different educational focuses.

New Zealand. 83 children (age: *M*=8.71, *SD*=1.42) from Wellington participated. Data were collected in a state school attended mainly by children from families of high socioeconomic status.

[Table 2 about here]

Instruments

Picture-Based Value Survey for Children (PBVS-C). The PBVS-C represents each of the 10 values in the theory of basic values in two pictures (see Figure 1 for sample items). In each picture, a leading character performs a value-related action. Each picture is accompanied by a brief caption that directs children's focus to the underlying motivational goal. After a brief introduction to the values theme, children are requested to think of how they would like to be in their lives and to sort the pictures in a predefined Q-sort format according to the importance they ascribe to each (for details see Döring et al., 2010). The original PBVS-C is German. Cieciuch, Harasimczuk, and Döring (2012) adapted it in Polish and established the structural and construct validity of the German and Polish versions of the PVBS-C through convergence of findings with the PVQ (Cieciuch et al, 2013; Döring et al., 2010).

For the present study, we adapted the PBVS-C for application in Italy, Bulgaria, the USA, and New Zealand, following established standards for adaptation: First, in each country, we checked whether any pictures required changes. We obtained both experts' ratings and children's understandings of the pictures in focus group discussions (cf. Morgan, Gibbs, Maxwell, & Britten, 2002; Vogt, King, & King, 2004). For Bulgaria, it was necessary to modify one picture that measures tradition values to represent a scene from an Orthodox church rather than a Roman Catholic or Protestant church. Second, we adapted the language of the picture titles and the instruction. One bilingual translated them into child-appropriate wording in the target language.

Another bilingual, who had not seen the original German, translated them back to the source (cf. Brislin, 1970).

Portrait Values Questionnaire (PVQ). The PVQ (Schwartz, 2003) presents short, gender-matched, verbal portraits that describe different people in terms of that person's goals, aspirations, or desires that point implicitly to the importance of a value. For example, "Thinking up new ideas and being creative is important to him/her. He/She likes to do things in his/her own original way." describes a person for whom self-direction values are important. For each portrait, respondents answer the question "How much like you is this person?" Response categories range from "not like me at all" to "very much like me." Respondents' own values are inferred from their self-reported similarity to the people described implicitly in terms of particular values. Five samples responded to the 21-item PVQ of the European Social Survey.[4] The Polish sample responded to the 40-item PVQ and we selected those items that correspond most closely to the 21-item version (cf. Cieciuch & Davidov, 2012).

Procedure

Trained researchers administered the PBVS-C to all children in each class during one school lesson, following the standardized instructions in Döring et al. (2010). In grade five (approximately 10 to 11 years of age), children completed the PVQ afterwards.

Data analysis

Data cleaning. There were no missing PBVS-C data in any sample. We dropped 11 cases for the PVQ data (all from the Bulgarian data set), because these children left out more than five items and/or because they gave the same response more than 16 times. This follows Schwartz's instructions for the PVQ21.[5]

Analyses of value structures. We analyzed the value structure of the PBVS-C data in each sample with theory-based ordinal Multidimensional Scaling (MDS), the method employed in all

recent publications on the values theory at an early age (Bilsky et al., 2013; Cieciuch et al., 2012; Cieciuch et al, 2013; Döring, 2010; Döring et al., 2010). MDS represents similarities between value items (in this case correlations) as distances in a two-dimensional space. The higher the correlation between two value items and the more similar their correlations with all the other items, the closer they are in the space. The resulting MDS plot depends on the starting configuration. If the researcher does not specify an appropriate starting configuration, the configuration chosen by default may yield a suboptimal solution (Borg & Groenen, 2005). We therefore specified a theory-based starting configuration that assigns each value item its prototypical coordinates in the circular model (columns 3, 4, and 5 in Table 1).

To assess the goodness of fit between the empirical correlation matrix and the two-dimensional MDS display, we employed the Stress-1 measure: The lower Stress-1, the better the fit. Furthermore, we checked whether the Stress-1 values of our solutions were noticeably worse than Stress-1 values obtained in simulation studies with random data (see Spence & Ogilvie, 1973). We then examined whether it was possible to partition the items in the two-dimensional space according to the prototypical circular model, paying particular attention to partitioning into the higher-order values. We performed the MDS analyses with the PROXSCAL module of SPSS20.

Analysis of structural equivalence across countries. We explored structural equivalence of the MDS solutions in the six countries with the GPA program in XLSTAT that performs Procrustes rotations (Commandeur, 1991). The program maximizes the similarity of the MDS solutions across samples by rotation, reflection, transposition, dilation, or shrinkage (cf. Fischer & Fontaine, 2011). We assessed the similarity between each pair of Procrustes rotated structures by correlating their coordinates on each of the two dimensions (cf. Fontaine et al., 2006; Fontaine, Poortinga, Delbeke, & Schwartz, 2008).

Analysis of value priorities. For each higher-order value, we used the mean of all items that represent it as the measure of its importance. For the PVQ, we centered individuals' responses around their own mean response before computing the importance scores, as suggested by Schwartz.[4] We compared the importance rank order of the higher-order values across countries. To explore the stability of value priorities in this supposedly homogeneous developmental stage, we calculated correlations between value priorities and age.

Sex-differences in value priorities. To assess the significance and the effect size of sex-differences, we computed a Multivariate Analysis of Covariance (MANCOVA) for each country, with the four higher-order values as dependent variables, sex as factor, and age as covariate. To allow for one-to-one comparison of our findings with findings from the previous literature, we converted the partial eta squares into Cohen's d.

Results

The results show highly similar patterns in value structures, value hierarchies, and sex-differences in value priorities across all six cultures.

Value structures

The value structures in all countries (for all single structures, see the Appendix) closely follow Schwartz's prototypical model and reveal a clear distinction among the four higher-order values. The Stress 1 for each MDS plot, which indicates the goodness of fit between the configuration of points in space and the empirical pattern of similarities and dissimilarities among the value items, is satisfactory: 0.164 in the German data, 0.202 in the Italian data, 0.154 in the Polish data, 0.181 in the Bulgarian data, 0.234 in the US-American data, and 0.230 in the data from New Zealand. All Stress 1 values are significantly better (i.e. lower) than what would be expected for random data (approximately .300 for 20 items in a 2-dimensional space; see Borg & Groenen, 2006).

Figure 2 shows the centroid configuration revealed through Procrustes analysis. The centroid represents the mean configuration of all six cultures included. As can be seen in Figure 2, the two-dimensional space can be divided into four regions, each containing items from only one higher-order value. Moreover, there is further differentiation within the regions for self-transcendence (universalism plus benevolence), openness to change (self-direction plus stimulation plus hedonism), and conservation (tradition plus conformity/security). Also, the configurations from the six cultures are highly similar to each other, with the majority of correlations between the coordinates of each two solutions greater than .8 (see Table 3).

[Figure 2 about here]

[Table 3 about here]

We further validated the measurement of the four higher-order values across instruments and cultures by computing multitrait-multimethod correlation matrices based on the data sets from the oldest children in each sample who also completed Schwartz's PVQ. Table 4 presents findings that clearly speak to construct validity (see Campbell & Fiske, 1959): In our data from Germany, Italy, Poland, and the USA, the monotrait-heteromethod correlations on the validity diagonal are substantial in size and considerably higher than both the heterotrait-monomethod and heterotrait-heteromethod correlations, thus indicating a strong convergence between the findings obtained with the two instruments. The pattern is similar in our data from Bulgaria and New Zealand, though with a weaker convergence of self-transcendence values across methods.

[Table 4 about here]

Value priorities

In five countries, children considered self-transcendence values most important and self-enhancement values least important. Conservation and openness to change values were located in the middle. In our sample from New Zealand, openness to change was slightly more important

than self-transcendence; but confidence intervals around these two means overlap (see Table 5). The correlations between age and value priorities were .00 for self-transcendence, -.15 for conservation, -.04 for self-enhancement, and .17 for openness to change (seeTable A1 in the Appendix for age-priority correlations in each country). To further assess variation of value priorities across age groups and cultures, we ran a MANOVA with the higher-order values as dependent variables and age and culture as independent variables. This yielded an overall partial eta squared (Pillai's trace) of .009 (p<.001) for age and .040 (p<.001) for culture. The partial eta squares for age were .002 (p=.242) (self-transcendence), .022 (p<.001) (conservation), .006 (p=.001) (self-enhancement), .017 (p<.001) (openness to change). For country they were .053 (p<.001) (self-transcendence), .032 (p<.001) (conservation), .060 (p<.001) (self-enhancement), .045 (p<.001) (openness to change). The variation across age groups was thus greatest for conservation and openness to change values, and the variation across countries was greatest for self-enhancement and self-transcendence values

[Table 5 about here]

Sex-differences in mean value scores

Table 6 presents findings for sex differences in mean value scores, obtained with the MANCOVA. The sex differences are similar across cultures: Girls ascribed more importance to self-transcendence and conservation values, whereas boys ascribed more importance to self-enhancement values. In those countries with larger sample sizes (Germany, Poland, Italy, and Bulgaria), these sex-differences were statistically significant. The pattern is less clear for openness to change values, which received similar importance ratings from boys and girls.

[Table 6 about here]

Discussion

Summary of findings

Overall, the patterns of findings for children's values are highly consistent across countries and closely match results from studies in adulthood (e.g., Schwartz & Bardi, 2001; Schwartz et al., 2012; Schwartz & Rubel, 2005). In the overall sample of 7-11 year old children, the data reveal the same value structures, pan-cultural hierarchies, and consistent sex-differences found with older children and adults. Moreover, across all six country samples, value structures, hierarchies, and sex differences are largely the same.

Our findings obtained with the PBVS-C among children strongly converge with findings obtained with the PVQ and the Schwartz Value Survey (SVS) in adult samples (reviewed in Schwartz & Rubel, 2005): The high importance of self-transcendence and the low importance of self-enhancement values that we found with the PBVS-C also holds with the vast majority of samples studied with the PVQ and with the SVS. Also, the variation across age groups was usually greatest for conservation and openness values and least for self-transcendence and self-enhancement values. Just as here, studies that employed the PVQ and SVS among adults found high variation across countries for self-enhancement values. In contrast to our findings, however, variation across countries was highest for conservation values. This might reflect the particular samples studied. None of them is from a society that is strongly traditional and hierarchical in its culture (see Schwartz, 2006b).

Limitations

The type of data we presented, self-report data from children that cover the whole range of value content, has never before been reported in the psychological literature. However, the sample sizes from the USA and New Zealand were small and all data were from convenience samples. Thus, although the pattern of findings from these two countries is similar overall to the data from the other four countries, the findings from the USA and New Zealand are tentative, and

replication studies with large and representative samples from numerous countries are highly desirable.

Consistent patterns across cultures

The highly consistent findings of the analyses with children were predicted from the literature on adults' values. Such surprising predictability from adults to children aged 7 to 11 is important for developmental psychology because it poses fundamental questions about basic, underlying processes in a formerly unexplored area.

Meaningfulness of value structures. Children's value structures are meaningful rather than random. They reflect similarities and dissimilarities among value items and among the values the items index. There is clear support for the distinctiveness of the four higher-order values and even considerable evidence that the motivational differences among the ten basic values are at least implicitly recognized. Moreover, the value structures obtained in the analyses at the group level demonstrate a consistent pattern of value relations that corresponds to the motivational structure of values theorized for adults. Closer inspection of our results reveals that the degree of structural similarity varies (1) across the two dimensions of the MDS plots and (2) across the six countries. The dimensions of the MDS plots could be labelled according to the recently introduced alternative dimensions of the circle (see Schwartz, 2006a): Dimension 1 could be interpreted as representing *focus on self* versus *focus on others*, with values on the left-hand side expressing focus on one's own pleasure, stimulation and achievement and values on the right-hand side expressing focus on rules, expectations, and well-being of others. Dimension 2 could be interpreted as representing *anxiety-based* versus *anxiety-free* values, with values at the bottom representing striving to secure resources and safe circumstances (to be able to face potential threats) and values at the top representing free striving for self-actualization and a harmonious world. Overall, the structures were more similar on dimension 1 than on dimension 2, pointing to

a shared construction of this opposition. In particular, on dimension 2, the position of the self-direction items considerably differed across samples.

As regards countries, the structures from New Zealand and the USA had the lowest similarity with all other structures. This may be because cultural factors characteristic of English-speaking countries influenced the value structures. However, these findings should be interpreted with caution because the samples from these countries were smaller than the others, the Stress 1 values were the highest, and the data were collected in private schools. Studies of adultsrevealed that the smaller the sample, the more the structure measured in one country deviated from the overall structure across countries (Fontaine et al., 2008). Moreover, the high Stress 1 values indicate that the observed structures are poorer representations of the data. Furthermore, the USA and New Zealand are the wealthiest countries in our study (along with Germany), and private school children may be among the more well-to-do. There is some evidence from adult studies that links higher socioeconomic status to significantly different value structures (Fischer et al., 2011). Future studies with larger samples are needed to disentangle cultural from methodological factors.

Overall, the children in our study apparently experience the motivational compatibilities and incompatibilities among values in the same way as did the thousands of adults in the numerous studies published in recent decades. We do not argue that every single child or even many children are consciously aware of the motivational conflicts and compatibilities among values. Even adults are typically not consciously aware of the value trade-offs they encounter, though they may become aware of them when facing difficult decisions (Schwartz, 2006a). Nonetheless, even children may become consciously aware of value conflicts. For example, while attending a traditional mass, a child may recognize that hedonistic behavior is undesirable in that context. The consistent tendencies across a large number of children for self-transcendence

values to oppose self-enhancement values and for conservation values to oppose openness to change values suggest that children implicitly recognize or experience these motivational oppositions.

Implications for value change. The circular structure of values contributes not only to an understanding of values as stable entities. It also has significant implications for value change. Value priorities tend to change in ways that follow straightforwardly from the systematic motivational structure of Schwartz's theory. Bardi and Goodwin (2011) provide a model of value change based on this structure, and Maio et al. (2008) demonstrated structure-consistent change experimentally. They primed respondents' self-transcendence values. This priming led not only to increased priority for the primed self-transcendence values but also to decreased priority for the motivationally incompatible self-enhancement values (achievement and power). Moreover, as the structure implies, there was no change in the priority of the orthogonal values (conservation and openness to change).

The motivational effect of spreading activation in the value system goes beyond cognitive effects to influence behavior too (Maio et al., 2008): People who received the self-transcendence prime tended to become more helpful and less competitive. Bardi and Goodwin (2011) suggest, based on empirical studies of adults, that the accumulation of single, value-challenging experiences can lead to long-term value change. Viewing these processes in light of recent conceptualizations of children's developing goals and self-concepts (e.g., Harter, 1999; Thompson et al., 2006), we speculate that the same mechanism applies to value change in childhood and to value development at an early age. In their everyday lives, children encounter numerous potentially value-shaping experiences – helping classmates in need and being pleased by their gratitude, being complimented or criticized for performing tasks and feeling proud or ashamed, exploring exciting new activities, etc. Over time, the experience of compatibility or

conflict among the choices children make in daily life likely leads to the crystallizing of their motivational goals into the circular value system of the Schwartz model. Further research into the emergence of value structures, ideally building bridges to established theories of the development of emotion, motivation, temperament, and traits, is highly desirable.

Pan-cultural value hierarchies. In adulthood, pan-cultural value hierarchies have been assumed to reflect universals in human nature and the requirements of successful societal functioning: Schwartz and Bardi (2001) explained that the basic social function of values is to motivate and control the behavior of group members. Values define certain behaviors as socially appropriate and desirable. These values are invoked by social actors (e.g., parents, leaders) and acquired through value transmission and value acquisition, as individuals adapt to customs, practices, norms, and scripts that surround them. But values are also internalized by individuals and thereby provide internal guidance and relieve the group of the necessity of social control.

Bardi and Schwartz (2001) proposed that promoting and preserving cooperative and supportive relations among members of primary groups is the most important requirement of group and societal functioning. They also refer to one of the most prominent theories of human development, Deci and Ryan's (1985) self-determination theory, wherein relatedness, community, autonomy, and personal growth are the major psychological needs whose fulfillment is intrinsically satisfying. Both lines of argumentation imply that self-transcendence values should be given the highest priority across cultures and self-enhancement values the lowest – the pattern that we found in our samples of children. Further elaborating on internalizing processes, Bardi and Schwartz (2001) explain that socializing agents "consciously and unconsciously seek to instill values that promote group survival and prosperity" (p. 280). Our data on pan-cultural hierarchies of values suggest that these processes are already in action in middle childhood. In line with the conceptualization of middle childhood as homogeneous stage, we found age to

explain less than 1% of the overall variance in value priorities, and age-priority correlations to be small in all samples.

Beyond these overarching similarities, we also discovered patterns of variation in value priorities across cultures: The children from the English-speaking countries had the highest mean scores in openness to change values. The distinctive cultural values found in English-speaking countries may account for this. These cultures emphasize affective autonomy and self-expression more than other countries – a cultural value combination that distinguishes them from both East and West European countries (Inglehart & Baker, 2000; Schwartz, 2006b). The distinctive cultural values of the East-European countries mau account for the finding that the children in these countries had the highest mean scores in self-enhancement values. This distinctive culture emphasizes hierarchy, legitimizing the pursuit of power in response to deprivation (Schwartz, 2006b), and survival values that legitimize pursuit of economic and physical security (Inglehart and Welzel[6]). Thus, these basic cultural emphases may already have influenced the children in our study. Borrowing an explanation and interpretation from Keller and Kärtner (2013), one might say:

> *Development* is the culture-specific solution of universal developmental tasks that lays the ground for gradually diverging developmental pathways. Cultural self-ways based on specific conceptions of autonomy and relatedness provide structural continuity across ontogenetic development and influence the timing, stability, dynamics, and gestalts of developmental processes. (p. 63)

Consistent sex-differences in value priorities. The sex-differences in value priorities we observed parallel those reported for data from multiple adult samples (Schwartz & Rubel, 2005). These differences are also rooted in the developmental literature: Blakemore et al. (2009) reviewed evidence for sex-differences in preferences for achievement, power, benevolent,

exploration, and security goals in specific situations across a variety of methods (parents' report, documents written by children, behavioral observations, etc.). They also cited a study by Morongielli and Dawber (1999) who demonstrated how single experiences of parent-child interaction shape young children's goal-directed behavior: In a standardized playground scenario, parents tended to encourage their sons to take risks and find solutions for themselves, but tended to protect their daughters and provide explanations to them. Scenarios like this are likely candidates for value-shaping experiences that lead to long-term value building and development over time (Bardi & Goodwin, 2011). Future research should explore these interconnections between the literature on values and the literature on motivational and emotional development. Across the six samples in our study, sex-differences were largest in Poland, Bulgaria, and Italy, which are those with most traditional gender roles. Whether gender roles are indeed the driving force that give rise to differences between boys' and girls' values needs to be explored in future studies.

Future directions: Children's motivational goals – precursors of adult values?

The evidence this article presents shows that the pattern of findings for value structures, pan-cultural value hierarchies, and sex-differences in value priorities found in studies of adults is already present in middle childhood. The Picture-Based Value Survey for Children (PBVS-C), used to assess children's values here, presents values as concrete motivational goals, and is thus closely attuned to children's thinking in this stage of concrete operations. This new measurement instrument enabled us to discover the presence of 'adult' value patterns in middle childhood. This pushes the question of how and when values develop these patterns to a still earlier age. The presence of adult-like value structures and priorities at ages seven to eleven implies that their onset must lie in early childhood. Critical developments apparently occur very early in life, before the age period we studied. Future research with assessment procedures appropriate to even

younger children is needed to advance our understanding of the developmental origins of values. Metaphorically speaking, we took the first cross-cultural snapshot of values in childhood. It pointed to possible developmental processes within and between individuals (e.g., cognitive maturation and intergenerational transmission of values). Whether these processes are at work and to what extent they are universal are still open questions that must be explored in longitudinal studies.

Footnotes

[1] Search on April 9th, 2014

[2] For evidence of the construct validity of the PBVS-C, that is, the degree to which findings obtained with the PBVS-C converge with those obtained with the PVQ, see Cieciuch, et al. (2013).

[3] It is worth noting that there is some variation in the hierarchy of value priorities across countries. For example, conservation values are most important in countries with very large families (Schwartz & Bardi, 2001). Socio-economic contexts may also affect value structures (Fischer, Milfont & Gouveia, 2011; Fontaine Poortinga, Delbeke & Schwartz, 2008). However, the preponderance of empirical evidence supports a (near) universal understanding of both value structure and priorities.

[4] http://www.europeansocialsurvey.org/

[5] http://essedunet.nsd.uib.no/cms/topics/1/4/

[6] http://www.worldvaluessurvey.org/WVSContents.jsp

References

Bardi, A. & Goodwin, R. (2011). The dual route to value change: Individual processes and cultural moderators. *Journal of Cross-Cultural Psychology, 42),* 271-287. doi: 10.1177/0022022110396916

Barni, D., & Knafo, A. (2012). Value systems of fathers, mothers and adolescents: Do parents and their children construe basic values in the same way? *Survey Research Methods, 6,* 3-11.

Bilsky, W., Döring, A.K., van Beeck, F., Schmitz, J., Rose, I., Aryus, K., Drögekamp. L., & Sindermann, J., (2013). Investigating children's value structures and value preferences – Testing and expanding the limits. *Swiss Journal of Psychology, 72*, 123-136. doi: 10.1024/1421-0185/a000106

Bilsky, W., & Schwartz, S. H. (1994). Values and personality. *European Journal of Personality, 8*, 163-181. doi: 10.1002/per.2410080303

Blakemore, J. E. O., Berenbaum, S. A., & Liben, L. S. (2009). *Gender development.* New York: Psychology Press.

Borg, I. & Groenen, P. (2005). Modern Multidimensional Scaling. Berlin: Springer.

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology, 1,* 185-216. doi: 10.1177/135910457000100301

Bubeck, M. & Bilsky, W. (2004). Value structures at an early age. *Swiss Journal of Psychology, 63*, 31-41. doi: 10.1024/1421-0185.63.1.31

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56,* 81-105. doi: 10.1037/h0046016

Cieciuch, J., & Davidov, E. (2012). A comparison of the invariance properties of the PVQ-40 and the PVQ-21 to measure human values across German and Polish Samples. *Survey Research Methods, 6*, 37–48.

Cieciuch, J., Döring, A. K., & Harasimczuk, J. (2013). Measuring Schwartz's values in childhood: Multidimensional Scaling across instruments and cultures. *European Journal of Developmental Psychology, 10*, 625-633. doi: 10.1080/17405629.2012.707779

Cieciuch, J., Harasimczuk, J. & Döring, A.K. (2010). Struktura wartosci w późnym dzieciństwie [Children's value structures]. *Psychologia Rozwojowa, 15*, 33-45.

Cieciuch, J., Harasimczuk. J., & Döring, A.K. (2013). Structural validity of the Polish adaptation of the Picture-Based Value Survey for Children (PBVS-C). *Journal of Psychoeducational Assessment, 31, 404-409.* doi: 10.1177/0734282912453125

Commandeur, J. J. F. (1991). *Matching configurations*. Leiden, the Netherlands: DSWO Press.

Costa, P. T. Jr, Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: robust and surprising findings. *Journal of Personality and Social Psychology, 81,* 322-31. doi: 10.1037/0022-3514.81.2.322

Daniel, E., Schiefer, D.,. Möllering, A, Benish-Weisman, M., Boehnke, K., & Knafo, A. (2012). Value differentiation in adolescence: The role of age and cultural complexity. *Child Development, 83(1),* 322-336. doi: 10.1111/j.1467-8624.2011.01694.x

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Döring, A.K. (2010). Assessing children's values: an exploratory study. *Journal of Psycho-educational Assessment, 28*, 564-577. doi: 10.1177/0734282909357151

Döring, A.K., Blauensteiner, A., Aryus, K., Drögekamp, L. & Bilsky, W. (2010). Assessing values at an early age: the picture-based value survey for children. *Journal of Personality Assessment, 92*, 439-448. doi: 10.1080/00223891.2010.497423

Eder, R. A. (1989). The emergent personologist: The structure and content of 3 ½-, 5 ½-, and 7 ½-year-olds' concept of themselves and other persons. *Child Development, 60,* 1218-1228. doi: 10.1111/j.1467-8624.1989.tb03552.x

Eder, R. A. (1990). Uncovering young children's psychological selves: Individual and developmental differences. *Child Development, 61,* 849-863. doi: 10.1111/j.1467-8624.1990.tb02827.x

Eder, R. A., & Mangelsdorf, S. C. (1997). The emotional basis of early personality development: Implications for the emergent self-concept. In R. Hogan, J. A. Johnson & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 209-240). San Diego, CA: Academic Press.

Eid, M. & Diener, E. (Eds.) (2006). *Multimethod measurement in psychology*. Washington, DC: American Psychological Association.

Erikson, E. H. (1963). *Childhood and society* (2nd Ed.). New York: Norton.

Feather, N. T. (1992). Values, valences, expectations, and actions. *Journal of Social Issues, 48,* 109-124. doi: 10.1111/j.1540-4560.1992.tb00887.x

Fischer, R., & Fontaine, R. J. (2011). Methods for investigating structural equivalence. In D. Matsumoto & F. J. R. van de Vijver (Eds.), *Cross-cultural research methods in psychology* (pp. 179-215). Cambridge: Cambridge University Press.

Fischer, R., Milfont, T. L., & Gouveia, V. V. (2011). Does social context affect value structures? Testing the intra-cultural stability of value structures with a functional theory of values. *Journal of Cross-Cultural Psychology*, *42*, 253-270. doi: 10.1177/0022022110396888

Fontaine, J. R. J., Luyten, P., De Boeck, P., Corveleyn, J., Fernandez, M., Herrera, D., et al. (2006). Untying the Gordian knot of guilt and shame: The structure of guilt and shame reactions based on situation and person variation in Belgium, Hungary, and Peru. *Journal of Cross-Cultural Psychology, 37,* 273–292. doi: 10.1177/0022022105284493

Fontaine, J.R.J., Poortinga, Y.H., Delbeke, L. & Schwartz, S.H. (2008). Structural equivalence of the values domain across cultures: distinguishing sampling fluctuations from meaningful variation. *Journal of Cross-Cultural Psychology, 39,* 345-365. doi: 10.1177/0022022108318112

Grusec, J.E., Goodnow, J.J. & Kuczynski, L. (2000). New directions in analyses of parenting contributions to children's acquisition of values. *Child Development, 71,* 205-211. doi: 10.1111/1467-8624.00135

Harter, S. (1996). Developmental changes in self-understanding across the 5 to 7 shift. In A. J. Sameroff & M. M. Haith (Eds.), *The five to seven year shift: The age of reason and responsibility* (pp. 207-236). Chicago, IL: University of Chicago Press.

Harter, S. (1999). *The construction of the self: A developmental perspective* (K. W. Fischer & E. T. Higgins, Eds.). New York: The Guilford Press.

Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review, 65,* 19-51. doi: 10.2307/2657288

Keller, H., & Kärtner, J. (2013). Development: The cultural solution of universal developmental tasks. In M. J. Gelfand, C. Chiu, and Y. Hong (Eds.), *Advances in culture and psychology* (pp. 63-116). New York: Oxford University Press.

Knafo, A., & Schwartz, S. H. (2003). Parenting and adolescents' accuracy in perceiving parental values. *Child Development, 73,* 595-611. doi: 10.1111/1467-8624.7402018

Knafo, A., & Spinath, F. (2011). Genetic and environmental influences on girls' and boys' gender-typed and gender-neutral values. *Developmental Psychology, 47,* 726-731. doi: 10.1037/a0021910

Kochanska, G. (1994). Beyond cognition: Expanding the search for the early roots of internalization and conscience. *Developmental Psychology, 30,* 20-22. doi: 10.1037/0012-1649.30.1.20

LaGreca, A. M. (Ed.).(1990). Through the eyes of the child. Obtaining *self-reports from children and adolescents.* Boston: Allyn and Bacon.

Maio, G. R., Pakizeh, A., Cheung, W., & Rees, K. J. (2009). Changing, priming, and acting on values: Effects via motivational relations in a circular model. *Journal of Personality and Social Psychology, 97*, 699-715. doi: 10.1037/a0016420

Morgan, M., Gibbs, S., Maxwell, K., & Britten, N. (2002). Hearing children's voices: methodological issues in conducting focus groups with children aged 7 - 11 years. *Qualitative Research, 2,* 5 – 20. doi: 10.1177/1468794102002001636

Morongiello, B. A., & Dawber, T. (1999). Parental influences on toddlers' injury-risk behaviors: Are sons and daughters socialized differently? *Journal of Applied Developmental Psychology, 20,* 227-251. doi: 10.1016/S0193-3973(99)00015-5

Schwartz, S. H. (1992). Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in Experimental Social Psychology, Vol. 25* (pp. 1-65). New York: Academic Press.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues, 50,* 19-45. doi: 10.1111/j.1540-4560.1994.tb01196.x

Schwartz, S. H. (2003). A proposal for measuring value orientations across nations. Chapter 7 in the *Questionnaire Development Package of the European Social Survey*. Website: http://www.europeansocialsurvey.org/index.php?option=com_docman&task=doc_view&gid=126&Itemid=80.

Schwartz, S. H. (2005). Human values. *European Social Survey Education Net.* Retrieved from: http://essedunet.nsd.uib.no/cms/topics/1/

Schwartz, S. H. (2006a). Les valeurs de base de la personne: Théorie, mesures et applications [Basic human values: Theory, measurement, and applications]. *Revue Française de Sociologie, 47,* 249-288.

Schwartz, S. H. (2006b). A theory of cultural value orientations: Explications and applications. *Comparative Sociology, 5,* 137-182. doi: 10.1163/156913306778667357

Schwartz, S. H. (2007). Value orientations: Measurement, antecedents and consequences across nations. In R. Jowell, C. Roberts, R. Fitzgerald & G. Eva (Eds.). *Measuring attitudes cross-nationally: Lessons from the European Social Survey* (pp. 161-193**).** London: Sage.

Schwartz, S. H. (2012). Values and religion in adolescent development: Cross-national and comparative evidence (pp. 97-122). In G. Tromsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development.* New York: Cambridge University Press.

Schwartz, S.H. & Bardi, A. (2001). Value hierarchies across cultures: Taking a similarities perspective. *Journal of Cross-Cultural Psychology, 32,* 268-290. doi: 10.1177/0022022101032003002

Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology, 58,* 878-891. doi: 10.1037/0022-3514.58.5.878

Schwartz, S.H., Melech, G., Lehmann, A., Burgess, S., Harris, M., & Owen, V. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. *Journal of Cross-Cultural Psychology, 32,* 519-542. doi: 10.1177/0022022101032005001

Schwartz, S.H. & Rubel, T. (2005). Sex differences in value priorities: Cross-cultural and multi-method studies. *Journal of Personality and Social Psychology, 89,* 1010-1028. doi: 10.1037/0022-3514.89.6.1010

Spence, I. & Ogilvie, J.C. (1973). A table of expected stress values for random rankings in nonmetric multidimensional scaling. *Multivariate Behavioral Research, 8*. 511-517. doi: 10.1207/s15327906mbr0804_8

Thompson, R. A., Meyer, S. & McGinley, M. (2006). Understanding values in relationships: The development of conscience. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 267-287). Mahwah, NJ: Erlbaum.

Vogt, D. S., King, D. W., & King, L. A. (2004). Focus groups in psychological assessment: Enhancing content validity by consulting members of the target population. *Psychological Assessment, 16(3),* 231 – 243. doi: 10.1037/1040-3590.16.3.231

Table 1

Definitions of values and starting configuration for MDS analyses (see Döring et al., 2010)

Names and Definition of Basic Values	Value Items in the Two Instruments	Angle φ	Coordinate on the X-Axis (Cos φ)	Coordinate on the Y-Axis (Sin φ)
Universalism (UN): Understanding, appreciation, tolerance, and protection for the welfare of *all* people and for nature	UN1, UN2 (PBVS-C); un1, un2, un3 (PVQ)	72	0.31	0.95
Benevolence (BE): Preservation and enhancement of the welfare of people with whom one is in frequent personal contact	BE1, BE2 (PBVS-C); be1, be2 (PVQ)	36	0.81	0.59
Tradition (TR) : Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide	TR1, TR2 (PBVS-C); tr1, tr2 (PVQ)	0	1.00	0.00
Conformity (CO): Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms	CO1, CO2 (PBVS-C); co1, co2 (PVQ)	324	0.81	-0.59
Security (SE): Safety, harmony, and stability of society, of relationships, and of self	SE1, SE2 (PBVS-C); se1, se2 (PVQ)	288	0.31	-0.95
Power (PO): Social status and prestige, control or dominance over people and resources	PO1, PO2 (PBVS-C); po1, po2 (PVQ)	252	-0.31	-0.95
Achievement (AC): Personal success through demonstrating competence according to social standards	AC1, AC2 (PBVS-C); ac1, ac2 (PVQ)	216	-0.81	-0.59
Hedonism (HE): Pleasure and sensuous gratification for oneself	HE1, HE2 (PBVS-C); he1, he2 (PVQ)	180	-1.00	0.00
Stimulation (ST): Excitement, novelty, and challenge in life	ST1, ST2 (PBVS-C); st1, st2 (PVQ)	144	-0.81	0.59

Self-direction (SD): Independent thought and action—choosing, creating, exploring	SD1, SD2 (PBVS-C); sd1, sd2 (PVQ)	108	-0.31	0.95

Table 2

Description of the samples (Ns) by age and gender

	Country												
	Germany		Italy		Poland		Bulgaria		USA		New Zealand		
Age	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Total
7	71	80	28	50	47	67	34	32	7	2	9	15	442
8	69	71	44	57	107	85	35	43	11	5	3	12	542
9	191	168	36	60	123	103	36	40	4	9	7	9	786
10	169	181	28	59	135	119	39	43	6	4	10	7	800
11	81	78	6	12	102	96	53	56	8	7	4	7	518
Total	589	578	142	238	514	470	197	214	36	27	33	50	3,088

Table 3

Intercorrelations of the coordinates of the MDS solutions after Procrustes rotation

	Configuration						
Configuration	Centroid	Germany	Italy	Poland	Bulgaria	USA	New Zealand
Centroid		.989	.987	.958	.982	.967	.933
Germany	.968		.983	.932	.970	.941	.930
Italy	.904	.948		.918	.982	.952	.905
Poland	.883	.812	.759		.921	.923	.881
Bulgaria	.916	.939	.885	.807		.952	.880
USA	.741	.676	.557	.536	.589		.855
New Zealand	.744	.624	.518	.646	.529	.465	

Note. Above the diagonal: Intercorrelations of the coordinates on dimension 1. Below the diagonal: Intercorrelations of the coordinates on dimension 2.

Table 4

Multitrait-Multimethod Matrix (a) for the Western-European countries

		PBVS-C				PVQ			
		SeTr	Con	SeEn	OtC	SeTr	Con	SeEn	OtC
PBVS-C	SeTr		,13	-.66**	-.39**	**.58****	.27**	-.60**	-.19*
	Con	.11		-.47**	-.61**	.12	**.43****	-.32**	-.26**
	SeEn	-.41**	-.35**		.01	-.48**	-.26**	**.62****	.03
	OtC	-.45**	-.57**	-.28**		-.15	-.40**	.22*	**.42****
PVQ	SeTr	**.46****	.33**	-.30**	-.33**		.06	-.75**	-.22*
	Con	.08	**.57****	-.11	-.41**	.12		-.49**	-.68**
	SeEn	-.37**	-.36**	**.51****	.11	-.48**	-.40**		.12
	OtC	-.15	-.48**	-.06	**.53****	-.51**	-.65**	-.05	

Note. PBVS-C = Picture-Based Value Survey for Children, PVQ = Portrait Values Questionnaire, SeTr = Self-Transcendence, Con = Conservation, SeEn = Self-Enhancement, OtC = Openness to Change. Above the diagonal: Findings from the German sample (N=119, 56 girls, 63 boys; age: range: 10 to 11 years, *M* = 10.74, *SD*=0.44). Below the diagonal: Findings from the Italian sample (N=91, 62 girls, 29 boys; age: range: 8 to 11 years, *M* = 10.16, *SD* = 0.48). In bold letters: Monotrait-heteromethod correlations. * p<.05, ** p<.01, two-tailed

Table 4 continued

Multitrait-Multimethod Matrix (b) for the Eastern-European countries

		PBVS-C				PVQ			
		SeTr	Con	SeEn	OtC	SeTr	Con	SeEn	OtC
PBVS-C	SeTr		.11	-.46**	-.37**	**.44****	.30*	-.46**	-.28*
	Con	.26*		-.56**	-.53**	.41**	**.46****	-.41**	-.51**
	SeEn	-.62**	-.62**		-.15	-.55**	-.37**	**.69****	.24
	OtC	-.39**	-.57**	-.03		-.16	-.30*	.03	**.48****
PVQ	SeTr	**.14**	.26*	-.25*	-.10		.27*	-.70**	-.58**
	Con	.26*	**.47****	-.29*	-.40**	.04		-.66**	-.71**
	SeEn	-.37**	-.37**	**.51****	.09	-.52**	-.47**		.38**
	OtC	-.12	-.41**	.09	**.45****	-.27*	-.81**	.12	

Note. PBVS-C = Picture-Based Value Survey for Children, PVQ = Portrait Values Questionnaire, SeTr = Self-Transcendence, Con = Conservation, SeEn = Self-Enhancement, OtC = Openness to Change. Above the diagonal: Findings from the Polish sample (N=59; 31 girls, 28 boys; age: 11 years). Below the diagonal: Findings from the Bulgarian sample (N=72; 34 girls, 38 boys; age: 11 years). In bold letters: Monotrait-heteromethod correlations.

* p<.05, ** p<.01, two-tailed

Table 4 continued

Multitrait-Multimethod Matrix (c) for the English-speaking countries

		PBVS-C				PVQ			
		SeTr	Con	SeEn	OtC	SeTr	Con	SeEn	OtC
PBVS-C	SeTr		.27	-.47*	-.43*	**.44***	.19	-.31	-.23
	Con	.15		-.60**	-.63**	.17	**.72****	-.46*	-.54**
	SeEn	-.54**	-.60**		-.06	-.38	-.42*	**.61****	.18
	OtC	-.44*	-.68**	.14		-.07	-.46*	.07	**.54****
PVQ	SeTr	**.30**	.31	-.25	-.35		.12	-.75**	-.12
	Con	.34	**.60****	-.59**	-.39*	.26		-.48*	-.84**
	SeEn	-.39*	-.36	**.73****	.00	-.38*	-.63**		.12
	OtC	-.25	-.56**	.25	**.61****	-.61**	-.73**	.18	

Note. PBVS-C = Picture-Based Value Survey for Children, PVQ = Portrait Values Questionnaire, SeTr = Self-Transcendence, Con = Conservation, SeEn = Self-Enhancement, OtC = Openness to Change. Above the diagonal: Findings from the US-American sample (N=26; 12 girls, 14 boys; age: range: 9 to 11 years, *M*=10.54, *SD*=0.58). Below the diagonal: Findings from the New Zealand sample (N=28; 14 girls, 14 boys, age: range: 10 to 11 years, *M*=10.39, *SD*=0.50). In bold letters: Monotrait-heteromethod correlations. * p<.05, ** p<.01, two-tailed

Table 5

Value priorities as assessed with the PBVS-C

Higher-order value	Means (and standard deviations) in each country						Rank
	Germany	Italy	Poland	Bulgaria	USA	New Zealand	
Self-Transcendence	3.54	3.69	3.31	3.45	3.46	3.29	1
	[3.51; 3.57]	[3.64; 3.74]	[3.28; 3.34]	[3.40; 3.50]	[3.34; 3.57]	[3.19; 3.39]	
	(0.54)	(0.44)	(0.51)	(0.50)	(0.46)	(0.47)	
Conservation	3.02	3.05	3.11	2.90	2.86	2.90	2/3
	[3.00; 3.05]	[3.02; 3.09]	[3.09; 3.14]	[2.86; 2.94]	[2.74; 2.98]	[2.82; 2.98]	
	(0.38)	(0.34)	(0.41)	(0.44)	(0.49)	(0.37)	
Self-Enhancement	2.33	2.13	2.58	2.70	2.22	2.30	4
	[2.29; 2.37]	[2.08; 2.19]	[2.54; 2.62]	[2.63; 2.76]	[2.08; 2.38]	[2.18; 2.43]	
	(0.67)	(0.53)	(0.68)	(0.65)	(0.59)	(0.61)	
Openness to Change	3.06	3.06	2.96	3.00	3.35	3.37	2/3
	[3.04; 3.09]	[3.02; 3.11]	[2.91; 2.99]	[2.96; 3.04]	[3.25; 3.46]	[3.29; 3.46]	
	(0.40)	(0.40)	(0.43)	(0.43)	(0.44)	(0.41)	

Note. 95% confidence intervals around the means as obtained through bootstrapping with 1,000 samples are given in square brackets.

Table 6

S*ex Differences in Mean Value Scores Measured with the PBVS-C*

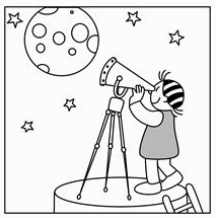
	Self-Transcendence			Conservation			Self-Enhancement			Openness to Change		
	Means (and Standard Deviations)			Means (and Standard Deviations)			Means (and Standard Deviations)			Means (and Standard Deviations)		
Country	Boys	Girls	d[a]	Boys	Girls	d	Boys	Girls	d	Boys	Girls	d
Germany	3.41	3.67	.49***	2.97	3.08	.30***	2.51	2.14	..59***	3.08	3.05	.09
	(0.57)	(0.48)		(0.40)	(0.36)		(0.74)	(0.53)		(0.41)	(0.40)	
Italy	3.50	3.81	.70***	2.98	3.01	.36***	2.36	2.00	.71***	3.11	3.04	.20*
	(0.47)	(0.38)		(0.37)	(0.32)		(0.61)	(0.41)		(0.47)	(0.35)	
Poland	3.17	3.46	.60***	3.05	3.18	.33***	2.79	2.35	.68***	2.98	2.94	.09
	(0.51)	(0.47)		(0.42)	(0.38)		(0.70)	(0.57)		(0.45)	(0.41)	
Bulgaria	3.33	3.57	.49***	2.77	3.02	.61***	2.93	2.48	.73***	3.06	2.95	.28**
	(0.49)	(0.48)		(0.45)	(0.38)		(0.69)	(0.54)		(0.43)	(0.42)	
USA	3.38	3.57	.42	2.87	2.85	.17	2.38	2.01	.87**	3.30	3.43	.23
	(0.47)	(0.43)		(0.59)	(0.35)		(0.62)	(0.48)		(0.44)	(0.44)	
New Zealand	3.23	3.34	.21	2.85	2.93	.18	2.44	2.22	.41	3.37	3.37	.06
	(0.47)	(0.48)		(0.35)	(0.38)		(0.67)	(0.55)		(0.47)	(0.37)	

Note. [a] Effect sizes controlled for the effect of age. * p<.05, ** p<.01, *** p < .001.

Figure Captions

Figure 1. Schwartz's (1992) model of universal human values and sample items from the PBVS-C

Figure 2. Value structure: Centroid configuration. UN = Universalism, BE = Benevolence, TR = Tradition, CO = Conformity, SE = Security, PO = Power, AC = Achievement, HE = Hedonism, ST = Stimulation, SD = Self-Direction. Solid lines separate regions of higher order values; dotted lines separate regions of values.

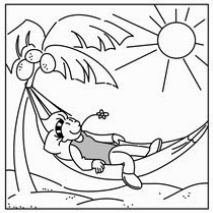


to discover new things

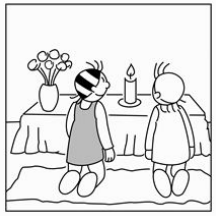
to make friends with strangers

to do exciting things

to help others



to enjoy life



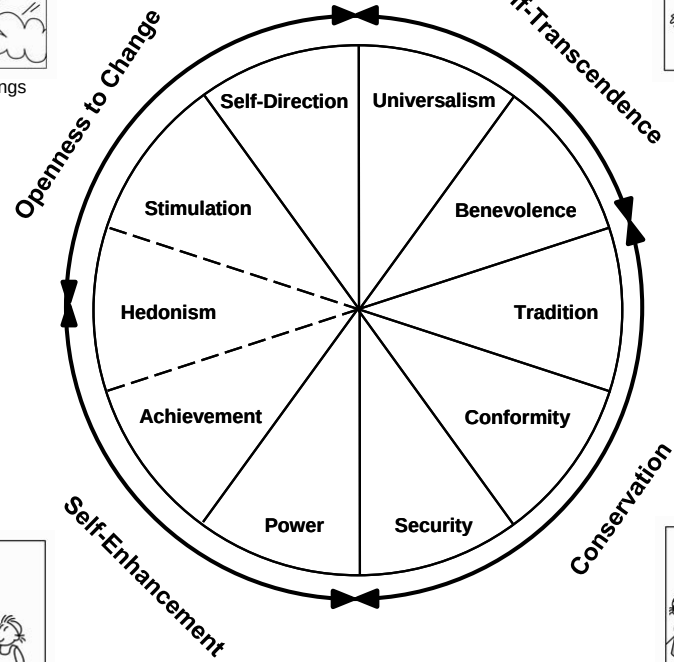
to think of God

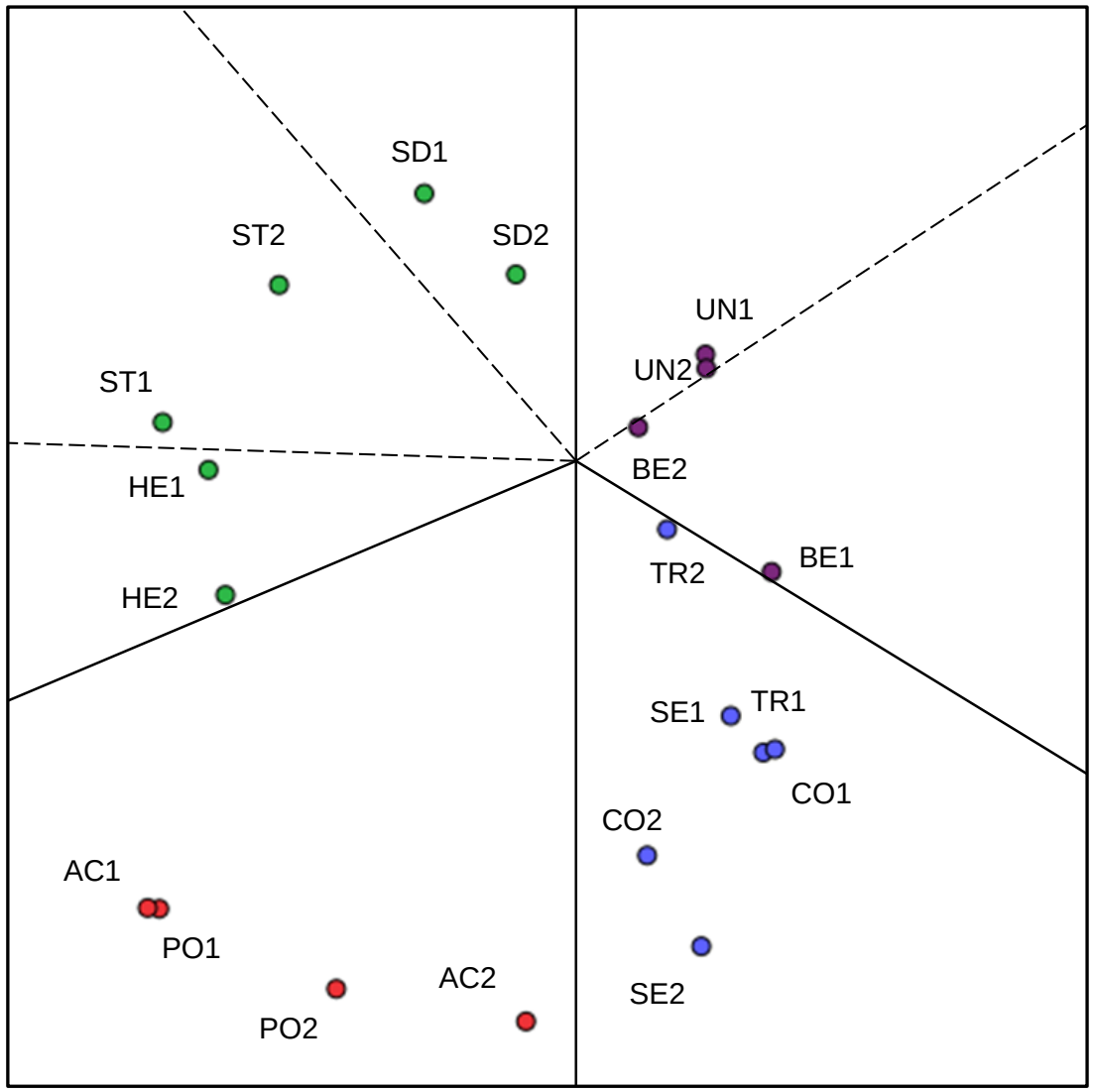
to be best

to be rich and powerful

to be safe

to observe the rules



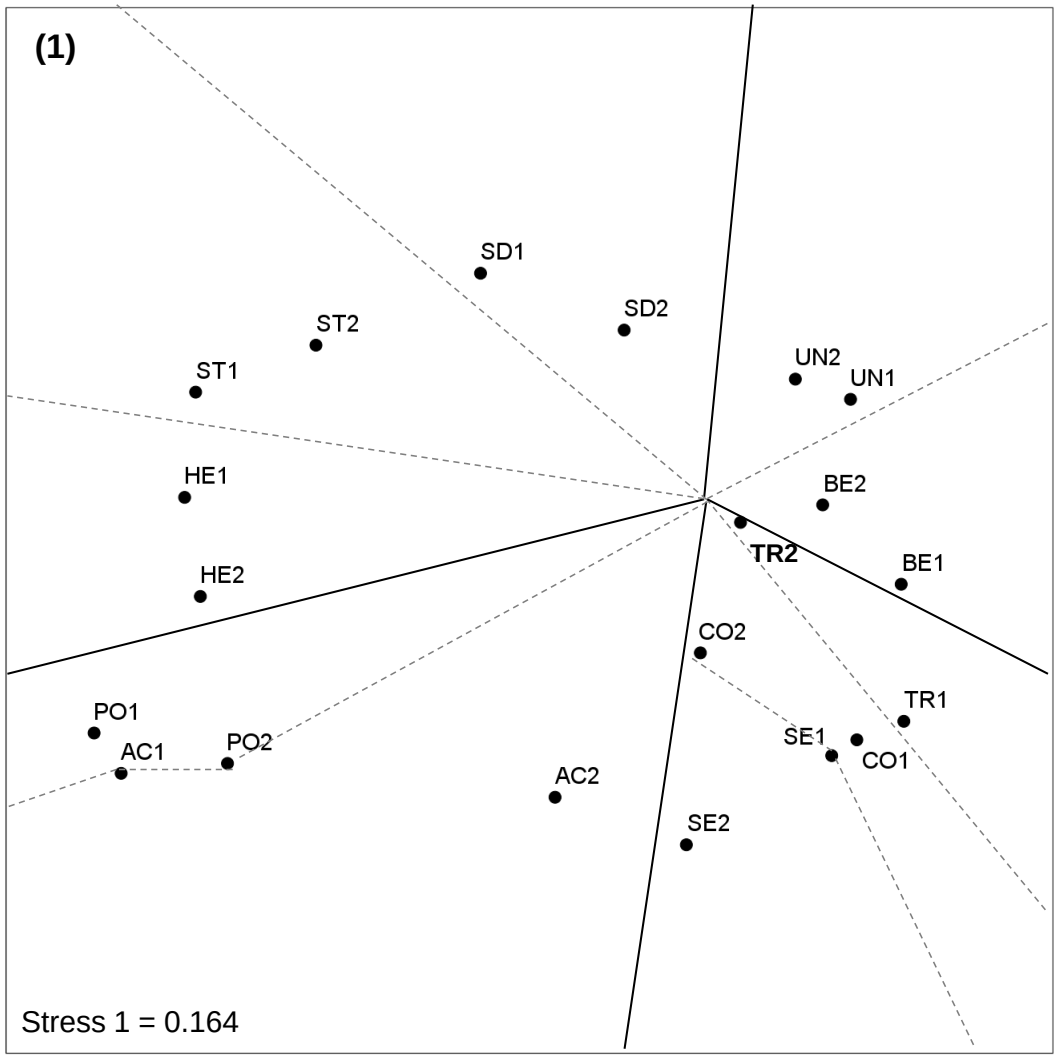

SD1
ST2
SD2
UN1
UN2
ST1
BE2
HE1
TR2
BE1
HE2
SE1
TR1
CO1
CO2
AC1
PO1
AC2
SE2
PO2

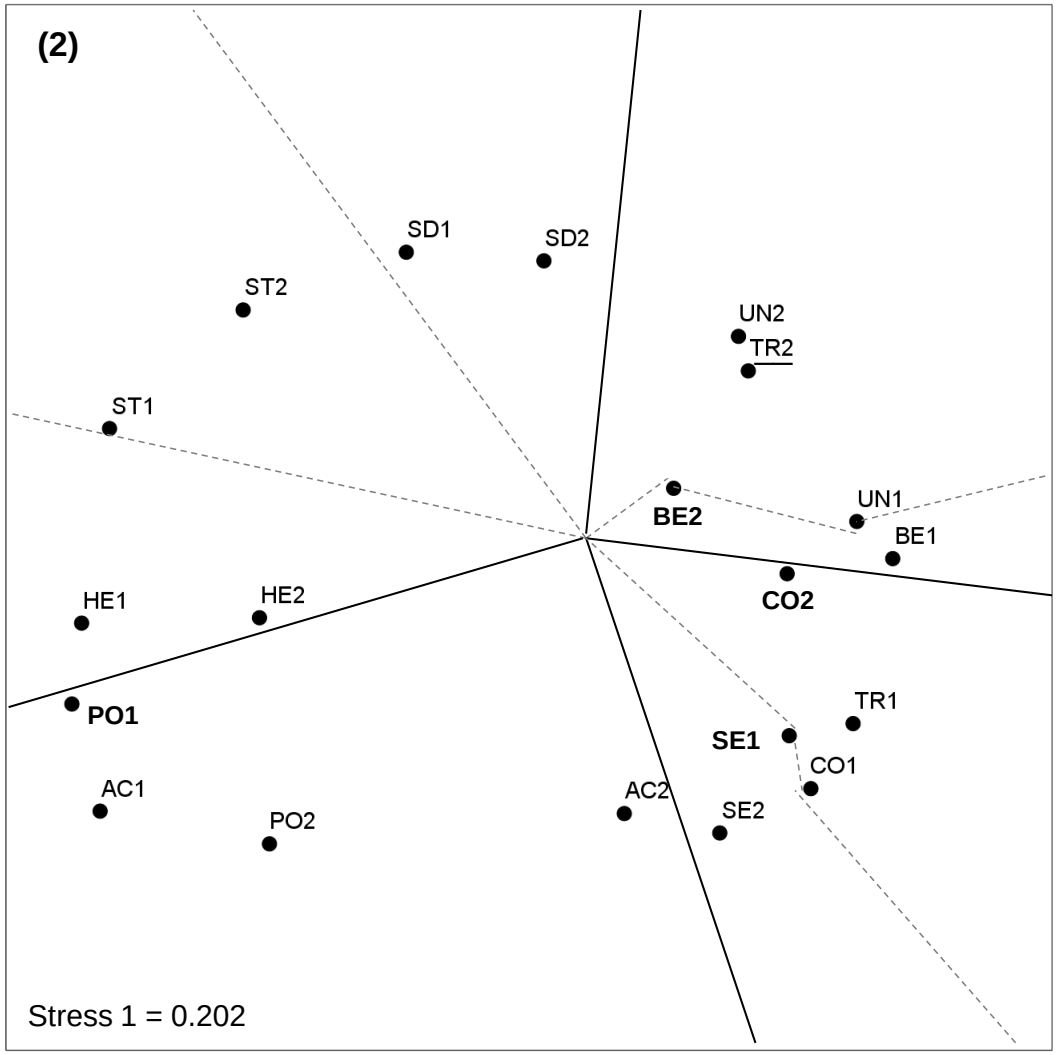
Appendix

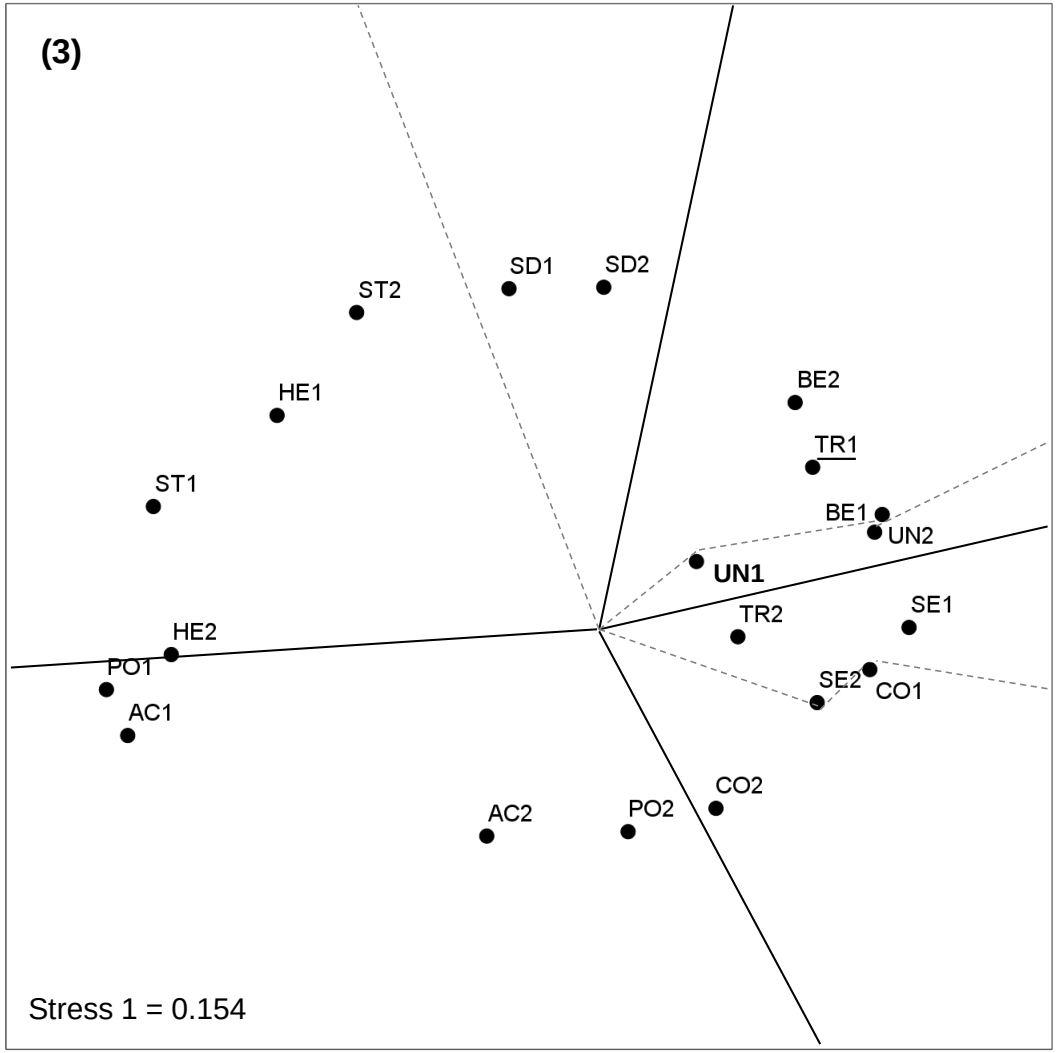
Multidimensional scaling of the PBVS-C items: plots for each country

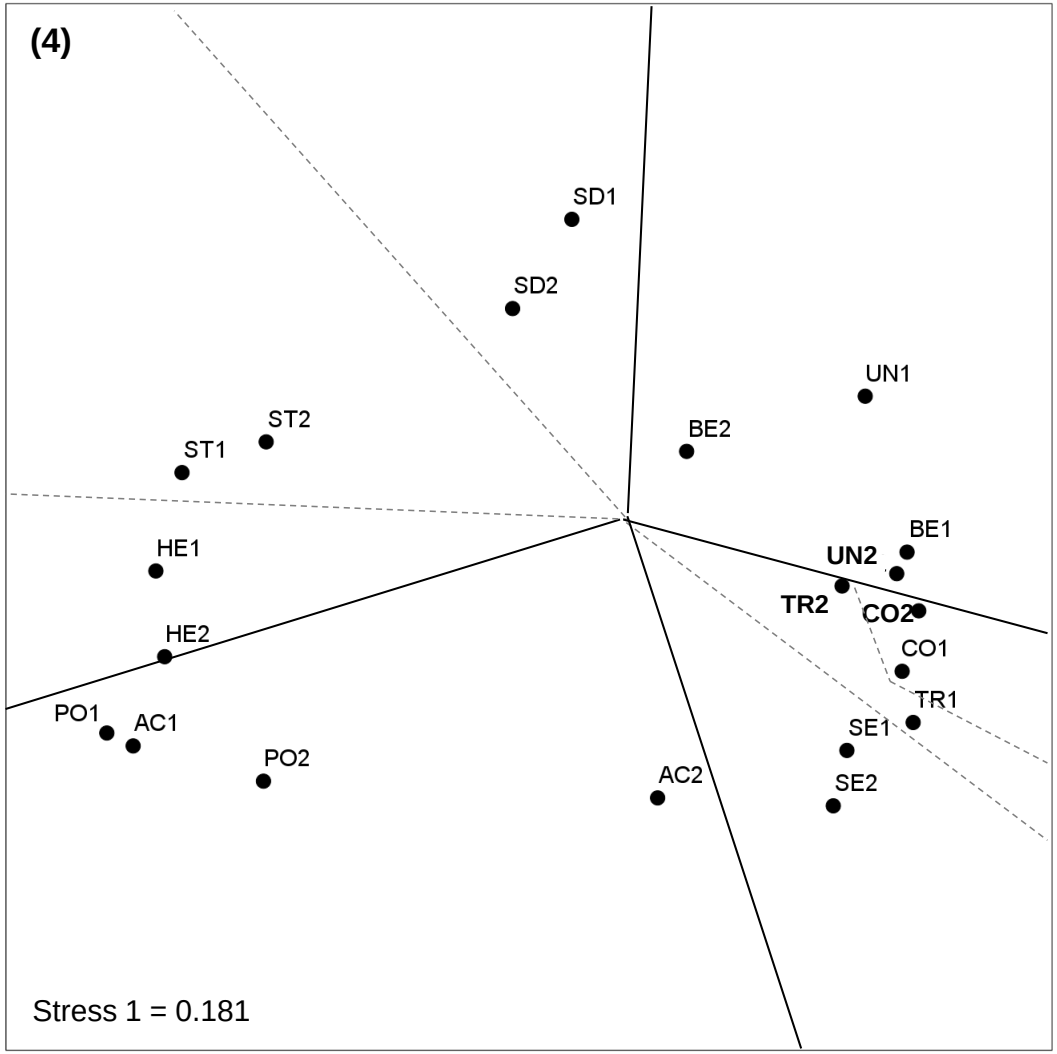
(1) Germany
(2) Italy
(3) Poland
(4) Bulgaria
(5) USA
(6) New Zealand

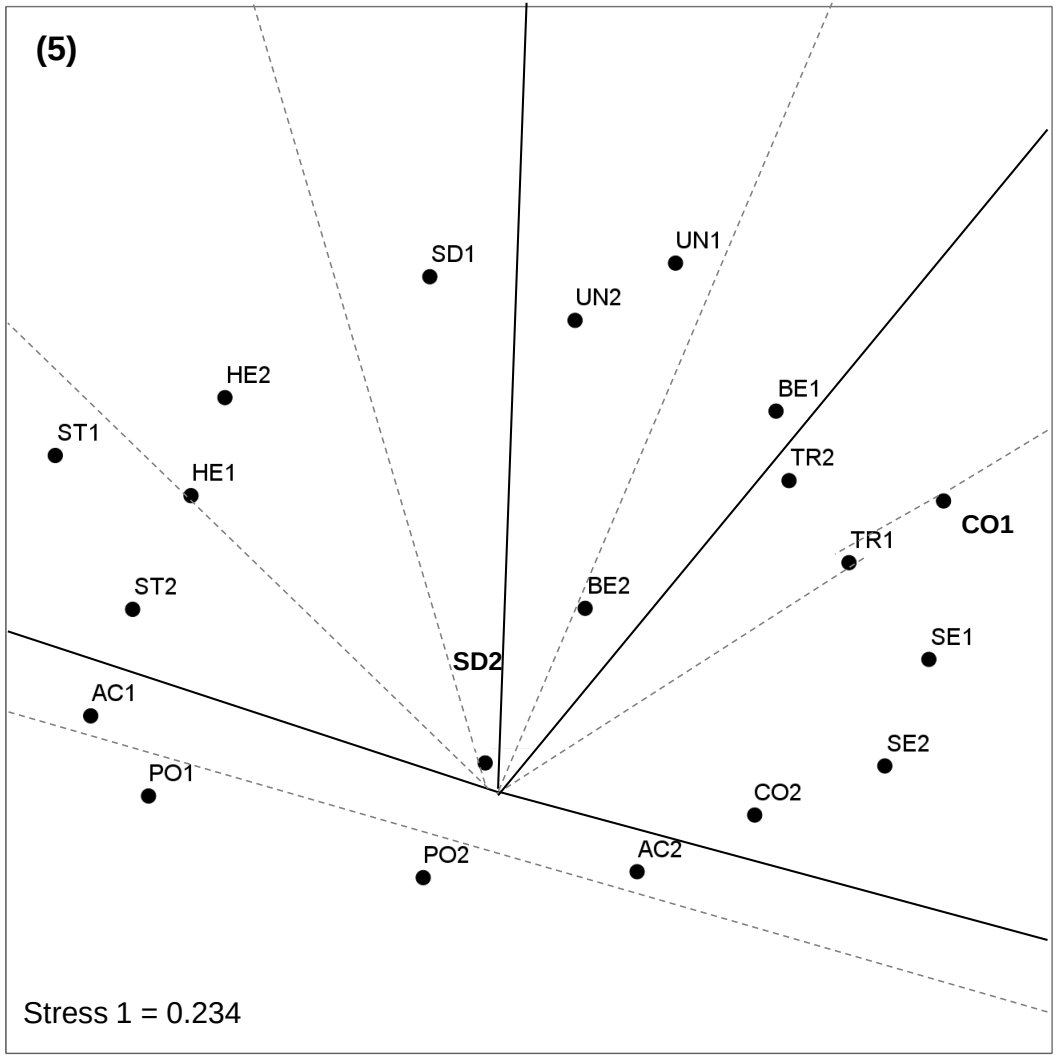
Solid lines separate regions of higher order values; dotted lines separate regions of values.


(1)
SD1
SD2
ST2
ST1
UN2
UN1
HE1
BE2
TR2
BE1
HE2
CO2
TR1
PO1
SE1
AC1
PO2
CO1
AC2
SE2
Stress 1 = 0.164


(2)
SD1
SD2
ST2
UN2
TR2
ST1
BE2
UN1
BE1
CO2
HE1
HE2
PO1
TR1
SE1
CO1
AC1
AC2
SE2
PO2
Stress 1 = 0.202


(3)
SD1
SD2
ST2
HE1
BE2
TR1
ST1
BE1
UN2
UN1
TR2
SE1
HE2
PO1
SE2
CO1
AC1
CO2
AC2
PO2
Stress 1 = 0.154


(4)
SD1
SD2
UN1
ST2
ST1
BE2
BE1
HE1
UN2
TR2
CO2
HE2
CO1
TR1
PO1
AC1
SE1
PO2
AC2
SE2
Stress 1 = 0.181


(5)
SD1
UN1
UN2
HE2
BE1
ST1
TR2
HE1
CO1
TR1
ST2
BE2
SE1
SD2
AC1
SE2
PO1
CO2
PO2
AC2
Stress 1 = 0.234

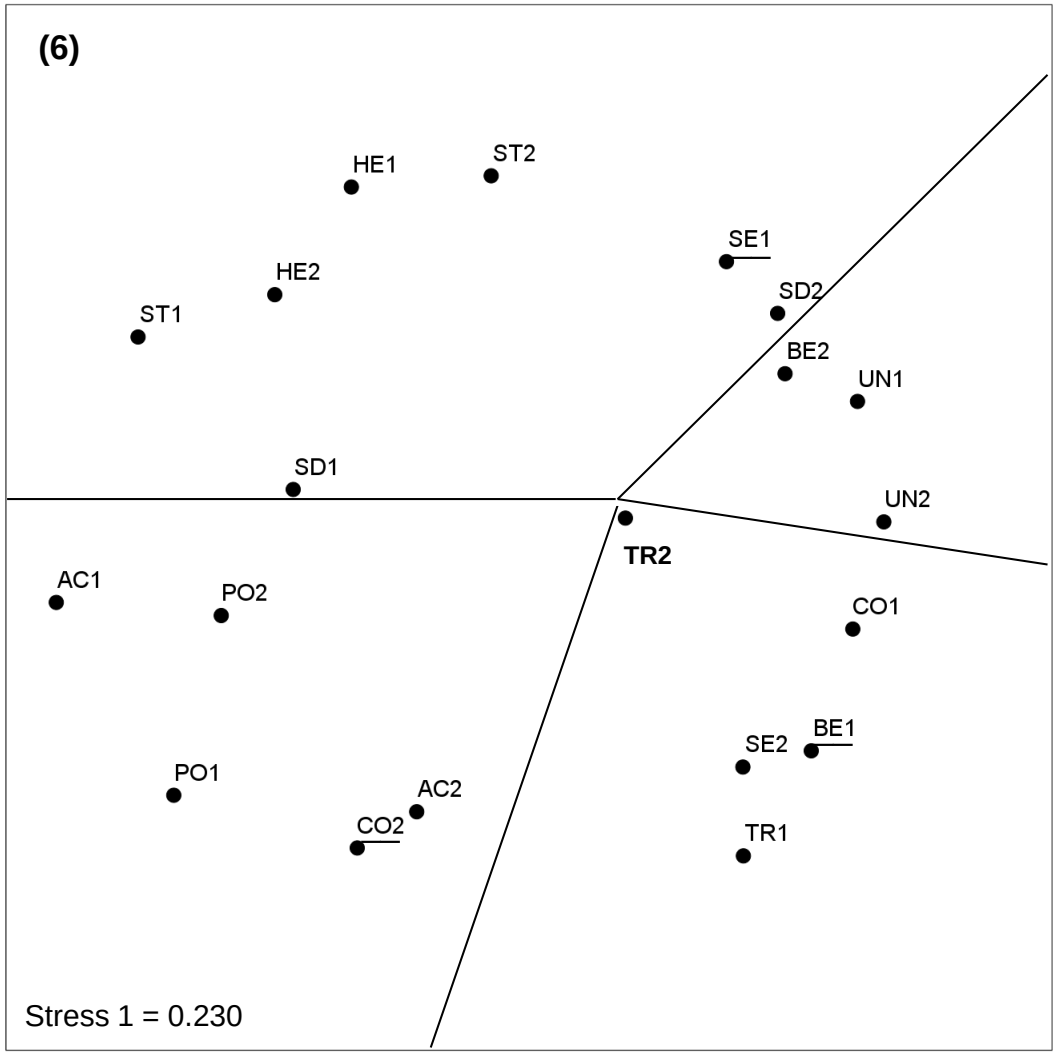

(6)
HE1
ST2
SE1
HE2
SD2
ST1
BE2
UN1
SD1
UN2
TR2
AC1
PO2
CO1
BE1
SE2
PO1
AC2
CO2
TR1
Stress 1 = 0.230

Table A1

Correlations between age and value priorities as assessed with the PBVS-C

	Correlations in each country					
Higher-order value	Germany	Italy	Poland	Bulgaria	USA	New Zealand
Self-Transcendence	.11**	.06	-.06	-.01	.10	-.08
	[.05; .17]	[-.04; .16]	[-.12; .01]	[-.11; .08]	[-.16; .36]	[-.31; .15]
Conservation	-.10**	-.24**	-.14**	-.18**	-.58**	-.18
	[-.16; -.04]	[-.34; -.14]	[-.20; -.07]	[-.27; -.09]	[-.69; -.43]	[-.39; .07]
Self-Enhancement	-.12**	-.02	-.04	-.07	.38**	-.14
	[-.18; -.06]	[-.13; .08]	[-.11; .02]	[-.17; .02]	[.16; .57]	[-.35; .09]
Openness to Change	.13**	.18**	.22**	.25**	.24	.35**
	[.07; .19]	[.08; .28]	[.16; .28]	[.17; .34]	[-.02; .48]	[.14; .54]

Note. ** $p < .01$. 95% confidence intervals around the means as obtained through bootstrapping with 1,000 samples are given in square brackets.