Running head: GOAL CONTENTS ACROSS CULTURES

The Structure of Goal Contents Across 15 Cultures

Frederick M. E. Grouzet

University of Ottawa

Tim Kasser

Knox College

Aaron Ahuvia

University of Michigan – Dearborn

José Miguel Fernández Dols

Universidad Autónoma de Madrid

Youngmee Kim

American Cancer Society

Sing Lau

Hong Kong Baptist University

Richard M. Ryan

University of Rochester

Shaun Saunders

University of Newcastle

Peter Schmuck

Technical University of Berlin

Kennon M. Sheldon

University of Missouri - Columbia

May, 17th 2005

Abstract

We investigated the structure of goal contents in a group of 1,854 undergraduates from 15 cultures around the world. Results suggested that the 11 types of goals we assessed were consistently organized in a circumplex fashion across the 15 cultures. The circumplex was well-described by positing two primary dimensions underlying the goals: Intrinsic (e.g., self-acceptance, affiliation) vs. Extrinsic (e.g., financial success, image), and Self-transcendent (e.g., spirituality) vs. Physical (e.g., hedonism). The circumplex model of goal contents was also quite similar in both wealthier and poorer nations, although there were some slight cross-cultural variations. The relevance of these results for several theories of motivation and personality are discussed.

The Structure of Goal Contents Across 15 Cultures

Personality psychology has been increasingly successful in describing the basic "universal" traits and values common across various cultures of the world. Although work certainly remains to be done in each of these areas, and although cultural variation still is notable across each of these psychological constructs, the literature is quite clear in suggesting five dimensions which underlie human personality traits (McCrae & Allik, 2002) and a two-dimensional circumplex model which organizes and explains the basic human values that people view as important in life (Schwartz, 1992). In the current paper, we extend this quest of understanding cross-cultural consistency in personality constructs by examining the content of people's *personal goals and aspirations*. Specifically, we attempt to determine whether culturally consistent dimensions can be identified which organize the content of personal goals and aspirations in a coherent, theoretically-meaningful fashion.

To this end, we draw on theory and research concerning personal goals and aspirations, as well as the closely-related but distinct concept of values, in order to: (a) define and measure personal goals that differ from each other in focus and content but are relevant to individuals around the world; and (b) examine the structural relations between these varied goals and determine whether a model can be derived that organizes them in a consistent way across the 15 cultures from which we sampled.

Goals and their Content: A Theoretical Approach

Since the 1980s, psychological research on goals has experienced a real renaissance, as researchers from a variety of theoretical perspectives have begun to examine a wide range of processes and dimensions relevant to the activation of, success at, and disengagement from the strivings, personal projects, and aspirations which people often pursue (see, e.g., Pervin, 1989 for an early summary of this work). Alongside this work on topics such as efficacy, conflict,

approach/avoidance, etc., other researchers have examined the content of goals as a way of understanding how people organize their lives and the types of aims for which individuals strive (Emmons, 1989; Kasser & Ryan, 1993, 1996; Roberts & Robins, 2000; Sheldon & Kasser, 1995, 1998). Although the literature on the content of goals is smaller, newer, and perhaps more controversial than is work on other dimensions of goal striving, the content of goals has nonetheless been shown to be an important predictor of outcomes of interest.

One of the more widely researched goal content distinctions concerns the differentiation between *intrinsic* and *extrinsic* aspirations (Kasser & Ryan, 1996). *Intrinsic* goals are defined as those pursuits that are generally congruent with the psychological needs for relatedness, autonomy, and competence proposed by self-determination theory (see Deci & Ryan, 2000; Kasser, 2002; Ryan & Deci, 2000) and thus are inherently satisfying to pursue, in and of themselves. Intrinsic goals include those for self-acceptance, affiliation, community feeling, and physical health. In contrast, *extrinsic* goals are primarily concerned with obtaining some reward or social praise; because they are typically a means to some other end or compensate for problems in need satisfaction, they are less likely to be inherently satisfying (see Deci & Ryan, 2000). For instance, research shows that people with strong extrinsic aspirations have more difficulty fulfilling their needs for competence, relatedness, and autonomy (see Kasser, 2002; Kasser, Ryan, Couchman, & Sheldon, 2004). Financial success, image, and popularity are common extrinsic goals. Research not only has shown that these two types of goals relate in different ways to personal well-being, social behavior, and ecologically-relevant activities (Kasser, 2002a; see also Saunders, 2001; Saunders & Munro, 2000), but that the two goals are distinguishable using factor analyses in various nations including the United States (Kasser & Ryan, 1996), Germany (Schmuck, Kasser, & Ryan, 2000), Russia (Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999), and South Korea (Kim, Kasser, & Lee, 2003).

Although this previous research suggests that one fundamental dimension along which the content of goals might vary is whether they are intrinsic or extrinsic, the extant literature is limited in many respects. First, although thus far the cross-cultural generalizability of the distinction between intrinsic and extrinsic goals has been promising, only four relatively economically-developed nations have been explored; more nations from a variety of backgrounds need to be studied. Second, although factor analyses have suggested that the two sets of pursuits are distinct, perhaps they lie on a continuum with intrinsic aspirations at one end and extrinsic at the other. To test this possibility, other more sophisticated analytic methods are needed to shed new light on the organization of intrinsic and extrinsic goals. Third, at this point of theoretical development, goals within each type (i.e., intrinsic or extrinsic) have been treated as essentially equivalent, when there may in fact be important differences between individual goals within each type. For example, even though community feeling and physical health both share an intrinsic character, they certainly differ from each other in terms of the types of activities they encourage and the developmental histories that may lead a person to focus on one or the other. Finally, these seven goals (i.e., self-acceptance, affiliation, community feeling, physical health, financial success, image, and popularity) clearly do not represent a complete taxonomy of the aims for which people strive in life, particularly since some goals are probably neither intrinsic nor extrinsic in nature, as they are neither directly related to psychological need satisfaction nor to the pursuit of rewards and/or praise.

Such limitations spurred us to conduct the present study, which sampled from a wider variety of nations while examining a broader array of goals that we hoped might suggest the existence of a second, orthogonal dimension that organizes individuals' goal pursuits into a circumplex model. Our reading of the literature on motivation and personal goals lead us to devise new measures for four additional goals, three of which were inspired by Schwartz's (1992)

work on <u>values, i.e., the higher order conceptions of the ideal that typically organize people's</u>

<u>goals (Schwartz, 1992; Emmons, 1999).</u> The first new aspiration we assessed concerned

conformity, or people's attempts to fit in with others in the social surround, a concern notable in

human behavior and recognized by the classic work of Asch (1951), as well as by theories

suggesting that people not only want to stand out from the crowd, but also blend in (e.g., Brewer,

1991). Second, safety goals are also pointed to by evolutionary (Buss, 1999), attachment

(Bowlby, 1988), and terror management theories (e.g., Pyszczynski, Greenberg, & Goldenberg,

2003), which all suggest that people are strongly motivated to feel safe and know that their

survival is likely. Third, hedonic goals were added because such motivations have long been

examined by psychologists (e.g., Freud, 1933; Morris, 1956; Young, 1961) and people

throughout the ages have certainly pursued a variety of sensual pleasures. Finally, the fourth

additional goal we assessed was for spirituality, which often emerges as an important striving for

people (Emmons, 1999; Emmons, Cheung, & Tehrani, 1998) and which we have examined in

some past work on aspirations (Kasser, 1996).

It seemed likely to us that these additional four goals, combined with the variations

described above within intrinsic and within extrinsic goals, might result in a second dimension

reflecting tendencies towards either self-transcendent or physical pursuits, or what many religious

writings have called the conflicts between "the spirit" and "the flesh." Such a dimension would

be consistent with James' (1892/ 1985) proposed three hierarchically ordered "selves" (or

"me's") "with the bodily me at the bottom, the spiritual me at top, and the extra-corporeal

material selves and the various social selves between" (p. 57). Freud's (1960) frequent

discussions concerning the fundamental conflicts between the id (physical drives) and the

superego (the influence of society) also point to such a dimension. More recent empirical work

also suggests such a distinction in goal pursuit. For example, Schwartz's (1992) model of values

includes a dimension representing self-transcendent vs. self-enhancing values, and Brewer and

Gardner (1996) proposed that the social selves differ along a dimension ranging from the

individual self to the interpersonal self to the collective self (for a review see Sedikides &

Brewer, 2001). If a dimension ranging from self-transcendent to physical organized the goal

contents we assessed, it might also help to distinguish among goals within intrinsic and within

extrinsic types. For example, the intrinsic goal of community feeling would probably be more

self-transcendent than the intrinsic goal of physical health, which is more physical. Similarly, the

extrinsic goal of financial success is probably more physically oriented than goals for popularity

or image, given that money can help to buy survival and physical pleasures.

        We also believed that these additional four goals would vary with regard to their

placement on the intrinsic/extrinsic dimension. First, we expected that neither spirituality nor

hedonism goals could be classified as typically intrinsic or extrinsic, because they do not

consistently conform to the conceptual criteria of satisfying inherent psychological needs (i.e., for

intrinsic goals) or of involving the pursuit of external rewards or praise (i.e., extrinsic goals). As

such, spirituality and hedonism might form the basis of the proposed orthogonal dimension of

self-transcendent vs. physical goals. Opposing sets of predictions can be made with regard to the

placement of conformity and of safety along the intrinsic/extrinsic dimension. Regarding

conformity, Schwartz's (1992) model would suggest that it might cluster most closely with

affiliation aspirations, given that conformity values are adjacent to benevolence values in his

research. On the other hand, because conformity goals are primarily concerned with obtaining

other people's praise and positive opinions (Kasser, 2002b), they have much in common with

extrinsic pursuits like popularity and image. With regards to goals for safety, Schwartz's model

demonstrates that values of security oppose those for self-direction, stimulation, and

universalism, and are thus consistent with values of power. As such, safety goals would be most

likely to fall in the realm of extrinsic goals. In contrast, Maslow's (1954) humanistic perspective

on needs suggests that security and safety goals would fall with intrinsic goals, as they concern

basic psychological needs had by all people (see also Kasser, 2002a; Saunders, Munro, & Bore,

1998).

The Present Study

In order to test the ideas presented above, we first administered a survey packet on goals

to 1,854 college students from 15 nations around the world. These nations varied in a number of

regards, including geography, individualism vs. collectivism, and economic wealth, and thus

provided an initial opportunity to examine similarities and differences in the structure of goal

contents across people from different cultures.

Next, we sought to establish that our measure of goals had acceptable psychometric

properties in terms of internal reliability and cross-cultural validity. Recent work by Spini (2003)

on Schwartz's value measure showed that most value types from the Schwartz Value Survey had

configural and metric equivalence across 21 countries.[1] We expected our measure of goal

importance, the Aspiration Index, to yield as good of psychometric properties as Schwartz's

Value Survey. Thus, we hypothesized (Hypothesis 1) that the 11 individual goals described

above and in Table 1 would have acceptable internal reliability, and that covariance analyses

would demonstrate that the subscales have acceptable measurement equivalence across cultures.

Our next task was to determine whether the goals would be consistently and coherently

organized across the 15 cultures. That is, like Schwartz's (1992) model of values or the Five

Factor model of traits (see e.g., McCrae & Allik, 2002), we expected that across different

cultures, people would organize their goals in essentially similar ways. In particular, we expected

goals to be organized into a "circumplex" structure in which: (a) certain goals were compatible

with each other while being in conflict with other goals; and (b) two dimensions underlay the

organization of the goals (Hypothesis 2a). To this end, we predicted that *multi-dimensional*

scaling (i.e., MDS) analyses (e.g., Borg & Groenen, 1997; Davison, 1983; Dillon & Goldstein,

1984) would reveal that intrinsic goals for self-acceptance, affiliation, community feeling, and

physical health would be compatible with each other and would lie on a dimension opposite from

the extrinsic goals of popularity, financial success, and image, which would in turn be compatible

with each other. Second, we expected that spirituality and hedonism goals would form the basis

of an orthogonal self-transcendent/ physical dimension. We made no hypotheses about the

relative placement of conformity and safety, given the competing arguments in the literature

about the goals with which they might be most consistent. In order to most stringently test

whether the goals organized themselves into a "circumplex model" (as defined by Fabrigar,

Visser, & Brown, 1997 and by Larsen & Diener, 1992), we hypothesized that the goals could be

ordered along the circumference of a circle (Hypothesis H2b). In order to test this hypothesis, we

conducted confirmatory covariance analyses using Browne's (1992) *circular stochastic modeling*

technique (i.e., CIRCUM; Browne, 1995; see Overview of Analytic Strategy section).

Finally, to further test whether the configuration, compatibilities, and conflicts of goals

were essentially similar across cultures, we used 1997 data on the GNI per capita (source:

http://www.worldbank.org) to place each culture into a wealthier (U.S.A., Canada/Quebec,

France, Spain, Germany, China/Hong Kong, South Korea, and Australia; GNI ranged from

$11,400 to $30,030 per capita) and poorer group (the Dominican Republic, Colombia, Romania,

Bulgaria, Egypt, India, and China/Beijing; GNI ranged from $420 to $2,500 per capita).[2] We

then examined whether the goals were ordered in a similar circumplex configuration in both

wealthier and poorer cultures, with the expectation that they would be (Hypothesis 3).

<div align="center">Method</div>

Samples

Between 1996 and 2000 we collected 1,984 questionnaires from university students in 15 different countries and provinces: Australia, Bulgaria, Canada (Quebec), China (Beijing and Hong Kong separately), Colombia, the Dominican Republic, Egypt, France, Germany, India, Romania, South Korea, Spain, and the United States. Table 2 presents the main characteristics of the samples in terms of size, geographical location, language in which the survey was administered, percentage of female subjects, mean age, ethnic origin, religion, and marital status. Of the 1,984 participants, 1,854 (93%) had no missing answers on the 57 items of the Aspiration Index and were retained for further analyses.

Measure: The Aspiration Index

This version of the Aspiration Index was based on earlier versions (Kasser & Ryan, 1993, 1996, 2001) and was designed to measure 11 different goal domains. Subjects were presented with 57 different "goals that you may have for the future" and were asked to rate "how important each goal is to you" using a scale ranging from 1 (not at all) to 9 (extremely). Odd numbered scale points were given labels of 3 (a little), 5 (moderately), and 7 (very). Eight of the goal subscales were adapted from previous studies (Kasser, 1996; Kasser & Ryan, 1993, 1996), and measured the domains of: financial success (4 items), image (5 items), popularity (4 items), self-acceptance (8 items), affiliation (6 items), community feeling (4 items), physical health (5 items), and spirituality (6 items). Three other goal subscales were developed for this study, and measured goals for: conformity (5 items), hedonism (5 items), and safety (5 items). The items were presented in a random order.

Procedure

The questionnaire was originally written in English and then translated by competent bilinguals who were either our research collaborators or were supervised by them. Translations,

following back translation procedure (Brislin, 1970), were required for the Bulgarian, Chinese,

French, German, Korean, Romanian, and Spanish versions of the AI.

The survey packet was distributed to participants on a voluntary basis at universities and

colleges around the world. No financial incentives were provided to the students in exchange for

their participation, although extra course credit was given on occasion. Some students completed

the survey packet in class, whereas others completed it at their own leisure and returned it to the

experimenter within a day or two. The survey packet included several other questionnaires

besides the AI, and one other set of ratings (i.e., likelihood of attainment) was made on the goals

composing the AI; these data are not relevant to the present set of hypotheses.

Overview of Analytic Strategy

After first using internal reliability tests to determine which items were to be retained

within each of the 11 goal subscales, we conducted a confirmatory factor analysis (CFA) on the

retained items in order to test the proposed 11-factor structure of the Aspiration Index. Because

indicators of goodness of fit such as the comparative fit index (CFI; Bentler, 1990) are not ideal

for testing complex models such as this one (Beauducel & Wittmann, 2005) we applied the

decision rules of Hu and Bentler (1998; 1999) which concerns the root mean square error of

approximation (RMSEA; Steiger & Lind, 1980) and the standardized root mean square residual

(SRMR; Bentler, 1995). Specifically Hu and Bentler's decision rules claim that a model

adequately fits the data if RMSEA $\leq$ .05 and SRMR $\leq$ .06 or if RMSEA $\leq$ .06 and SRMR $\leq$ .09,

respectively.

Next, we tested the measurement equivalence of the subscales to determine whether these

goal ratings were invariant across cultures. Equivalence of measurement across cultures was

evaluated with multigroup confirmatory factor analyses of unidimensional structural equation

models (using EQS 6.1 software; Bentler, 2003). Specifically, we performed 11 (one for each

goal scale) mean and covariance structures (MACS) analyses (Little, 1997) in each of the 15

cultures. Each of the 11 MACS analyses involved 3 nested models corresponding to different

levels of equivalence across groups (Meredith, 1993; see also e.g., Byrne& Campbell, 1999;

Little, 1997; Spini, 2003; Steenkamp & Baumgartner, 1998):

1) *Configural invariance* is tested through models that estimate factor loadings, factor

   variance, error of variances, and intercepts. The factor loading for each item should

   be different from zero across the cultures. These first models are considered here as

   the basic model (or $M_{configural}$). In our study, acceptable levels of configural invariance

   mean that the goal (as measured by the scale) is unidimensional in each culture, i.e.,

   that only one factor represents the interrelations among the items of the scale.

2) *Metric invariance* is tested through models where factor loadings are constrained to be

   equal across cultures. This corresponds to Meredith's (1993) weak invariance.

   Acceptable levels of metric invariance mean that factor loadings are comparable

   across the 15 cultures. These metric models (M_{metric}) are nested in the $M_{configural}$

   models.

3) *Scalar invariance* is tested through models where factor loadings and intercepts are

   constrained to be equal across cultures. This corresponds to Meredith's (1993) strong

   invariance. Acceptable levels of scalar invariance mean that intercepts are comparable

   across 15 cultures. This level of equivalence is important for testing whether different

   cultures endorse the concepts measured (i.e., the latent variable) to different extents.

   These scalar models (M_{scalar}) are nested in the M_{metric} models.[3]

Maximum likelihood estimation procedures are used with Satorra-Bentler's scaling

corrections, allowing the calculation of the Satorra-Bentler (SB) scaled chi-square value (Satorra

& Bentler, 1988, 1994). Two types of fit indices were used: overall and comparative fit indices

(see Bollen, 1989). Because these models were simpler than the 11-factor model initially tested (i.e., they tested only one factor as opposed to 11), we used the CFI, SRMR, and RMSEA. Furthermore, as recommended by Widaman and Thompson (2003), the CFI (i.e., an incremental fit index) was calculated with statistics from an "acceptable" independence null model, which is nested in the M_{scalar} analyses.[4] Values equal or superior to 0.95 for the CFI are considered to indicate a good fit to the data (Hu & Bentler, 1999). Similarly, SRMR values equal to or smaller than 0.08 are considered acceptable (Hu & Bentler, 1999). Finally, the Satorra-Bentler's scaling corrections allows the calculation of an adjusted RMSEA for non-normal conditions (see Nevitt & Hancock, 2000). Values below 0.06, with a confidence interval limit below 0.08, are used as thresholds for not rejecting a model (Browne & Cudeck, 1992; see also Hu and Bentler, 1999).

In addition to these overall fit indices, two comparative fit indices are also used to statistically evaluate the difference between nested models (i.e., $M_{configural}$ vs M_{metric}; M_{metric} vs M_{scalar}; see Bollen, 1989). First, we used the scaled difference chi-square test (Satorra, 2000; Satorra & Bentler, 2001) which compares two SB chi-square values from nested models rather than computing the simple difference between them (e.g., Byrne & Campbell, 1999). Second, as recommended by Cheung and Rensvold (2002), we also examined the changes in the CFIs (i.e., the difference in the CFIs between two nested models or ΔCFIs) when invariance constraints were added. An absolute value of ΔCFI smaller than or equal to |0.01| indicates that the invariance hypothesis should not be rejected, but when the absolute differences lie between |0.01| and |0.02| one should be suspicious that differences exist (Cheung & Rensvold, 2002). One of the advantages of the ΔCFI over the $\Delta\chi^2$ is that it is not as strongly affected by sample size. To sum up, a non-significant difference between the $M_{configural}$'s and the M_{metric}'s scaled chi-squares or an absolute difference between the $M_{configural}$'s and the M_{metric}'s CFIs of |0.01| or less means

that metric invariance is attained. Further, a non-significant difference between the M_{metric}'s and

the M_{scalar}'s scaled chi-squares or an absolute difference between the M_{metric}'s and the M_{scalar}'s

CFIs of |0.01| or less means that scalar invariance is attained.

To examine the circumplex structure of relations among the 11 goal domains, as well as

whether the relations were cross-culturally consistent, we used two statistical techniques: (a)

nonmetric *multidimensional scaling* (MDS) analyses (e.g., Borg & Groenen, 1997; Davison,

1983; Dillon & Goldstein, 1984) in order to test the hypothesized two-dimensional component of

the goal structure (H2a); and (b) Browne's (1992) *circular stochastic modeling* (i.e., CIRCUM;

Browne, 1995) in order to test the circumplex component of the hypothesized goal structure

(H2b).

The appropriateness of MDS techniques over factor analysis for testing multidimensional

hypotheses has been explained elsewhere (e.g., Schwartz, 1992; Schwartz & Bilsky, 1990). In

brief, this technique represents the goal factors as points in a two-dimensional space such that the

distance between the points reflects the empirical relations among goals. Thus, goals which lie

close to each other are considered by most individuals to be relatively consistent or

complementary with each other, whereas those goals which are on opposite sides of the two-

dimensional space (and are thus far apart) are viewed by people as in conflict or inconsistent with

each other. Because the actual axes resulting from MDS analyses are considered to be arbitrary,

they are not assumed to have substantive meaning. Consequently, the MDS solution can be

(orthogonally) rotated in order to draw different meaningful representations. In the MDS

analyses conducted below, we used the factor scores rather than the mean scores for each of the

11 goal factors. Then, 11×11 dissimilarity matrices for the combined samples were generated

with Euclidian distances and these dissimilarity data were used as input in a two-dimensional

MDS of the combined samples.

The choice of a two-dimension solution was motivated by the interpretability of the

solution (see Schwartz, 1992; note 10; p. 23) and our hypotheses. Our approach was therefore

confirmatory but we nonetheless tested this two-dimension solution in accord with Davison's

(1983) three criteria of "interpretability," "fit," and "reproducibility." The "interpretability"

criterion dictates that the number of dimensions should be the smallest number necessary to

incorporate all of the important stimulus features (stimulus orderings or groupings). In terms of

"fit", we examined the STRESS indicators and the R^2 measures for one- through five-

dimensional solutions, paying particular attention to the dimensions-by-fit plots (i.e., scree plot;

see Hair, Tatham, & Black, 1998). Finally, "reproducibility" dictates that the solution be

composed of dimensions that occur consistently across subgroups. We thus performed 15

additional MDSs (one for each culture) to determine whether the results from these STRESS

analyses confirmed the results from the overall STRESS analysis in the combined sample of 1854

participants.

In order to examine similarities of the structural configuration across cultures, we

examined the 15 aforementioned MDSs. In particular, as described by Schwartz (1992; p. 35-

36), we examined how close or distant each pair of goal factors was to each other in the MDS for

each sample. More specifically, for each pair of goal factors we calculated the distance between

the two points that they had been assigned to in the two-dimensional space generated by the

MDS.[5] Then, we transformed the distance score into an *ipsative* distance score.[6] Positive

ipsative distance scores represent consistent goals, whereas negative ipsative distance scores

represent inconsistency. <u>For ease of interpretation, we not only report the mean ipsative distance</u>

scores, but also report the number of samples in which these scores suggested that different pairings of goals were consistent or inconsistent.

As mentioned above, we also tested whether the configuration, compatibilities, and conflicts were essentially similar in wealthier (U.S.A., Canada, France, Spain, Germany, Hong Kong, South Korea, and Australia) and in poorer (the Dominican Republic, Colombia, Romania, Bulgaria, Egypt, India, and China) cultures. Thus, we recomputed the analyses reported above separately for the two groups of cultures.

Although MDS was largely used in order to provide spatial representations of the data structure and to "observe" a circumplex ideal, Gurtman and Pincus (2003, p. 411) noted that "any serious test of the circumplex model should also include application of confirmatory methods. Hence, confirmatory methods offer the logical next step in validating the circumplex properties of a given data set." As such, in order to "confirm" the circular component of a circumplex structure (H2b), we used Browne's (1992) *circular stochastic modeling* approach, using CIRCUM (Browne, 1995), which is a structural equation modeling (SEM) program similar to EQS (Bentler, 1995).[7] In particular, CIRCUM evaluates the extent to which an observed correlation matrix fits a particular kind of correlation model referred to by Guttman (1954) as the circulant matrix. If it does, the correlation between two variables should be a function of the angle between the variables on the perimeter of a circle[8] (Browne, 1992; see also Fabrigar, Visser, & Browne, 1997; for an extended review on circumplex modeling see Gurtman & Pincus, 2003). Furthermore, like other standard SEM programs, CIRCUM yields indices of the goodness of fit of the model, such as the RMSEA. As mentioned before, a RMSEA value close to 0.06, with a confidence interval limit below 0.08, is indicative of relatively good fit (Browne & Cudeck, 1992). CIRCUM yields several additional useful maximum likelihood (ML) estimates, including the polar angles of common score variables (i.e. location on the circle in relation to a

reference variable, whose position is set to 0°), estimates of the communality of each measured variable (i.e. the proportion of variance estimated to represent common variance), and the minimum common score correlation (i.e. the correlation between variables that are 180° apart). Confidence intervals for RMSEA and these estimates are also provided.

In the present study, the 11×11 Pearson product-moment correlation matrices from goal factor scores (used in MDS) were entered in CIRCUM for analysis. The goal "affiliation" was arbitrarily designated as the reference variable (i.e., its location was set to 0° and the locations of the other variables were estimated relative to it). No constraints were placed on the location of the variables, the communalities, or the minimum common score correlation (CIRCUM allows these additional constraints to be placed on the model, but they are not necessary for a circumplex hypothesis).

In order to examine consistencies of the circumplex configuration across cultures, we performed two additional CIRCUM analyses (for wealthy and poor culture groups; see above) following the steps described above. Then, the empirical placements (i.e., estimated angular positions) of the goal variables on the wealthier and poorer culture circles were correlated.

<div align="center">Results</div>

Psychometric Characteristics of the Aspiration Index: Internal Reliability and Measurement Equivalence (H1)

In order to detect any item that consistently detracted from a subscale's reliability, in each culture we computed reliability coefficients (Cronbach's alpha) and item-total correlations for the items which a priori composed each of the 11 goal domains. These analyses suggested the removal of one item each from the popularity, conformity, affiliation, community feeling, safety, and health domains, and two items each from the hedonism and spirituality domains. The final

versions of the subscales showed acceptable levels of internal consistency, as the mean and

median alpha reliabilities across countries for the 11 domains of aspirations were, respectively:

financial success (.84; .83); image (.76; .74); conformity (.67; .62); popularity (.73; .71); self-

acceptance (.79; .73); affiliation (.81; .75); community feeling (.75; .71); physical health (.72;

.74); hedonism (.70; .72), safety (.71; .70); and spirituality (.90, .87).

The retained 47 items were then analyzed in a confirmatory factor analysis (CFA) in

which we specified 11 distinct (but correlated) latent factors corresponding to the hypothesized

goal domains. Fit indices were: SB-Chi-square ($df = 979$) = 4643.93, $p<.001$; CFI = .87; SRMR

= .050; RMSEA =.045 (90% CI: .044;.046). Although the CFI was slightly below the .90 criteria

that is sometimes use for simpler models, the RMSEA and SRMR indices that are more

appropriate for complex models such as ours (Beauducel & Wittmann, 2005; Raykov, 1998)

provided strong support for the model; that is, both met Hu and Bentler's (1999) decision rules

for determining that a model adequately fits the data. Further, the average of the absolute

correlation residual (i.e., the discrepancy between observed and predicted correlation matrices)

was lower than 0.10 (i.e. it was 0.039), and less than 5% of these correlation residuals were

higher than 0.10 (i.e., 95% were below 0.10); these results also indicate good local fits

(Tomarken & Waller, 2003).

Next, we examined measurement equivalence of each goal subscale across cultures in

order to test our first hypothesis. Table 3 shows SB chi-square statistics and overall fit indices

for each of the 3 models testing configural, metric and scalar invariance, as well as comparative

fit indices between nested models. Regarding configural invariance, we could not evaluate this

for three subscales (i.e., Community feeling, Hedonism, and Popularity) because each was

comprised of only three items. All 8 of the remaining goal subscales, however, were invariant

and unidimensional across the 15 samples. Regarding metric invariance, although a couple of

SRMR values were above 0.08, most of the CFI and RMSEA values and ΔCFI statistics

supported the hypothesis, as each item loaded on the relevant goal domain at approximately equal

strength across the 15 cultures. In contrast, regarding scalar invariance, although RMSEA values

were acceptable for some of the goal domains, other statistics indicated that the scalar invariance

hypothesis should be rejected for all the goal models.

In sum, these results not only supported our implicit assumption that the AI is composed

of 11 factors, but also supported our first hypothesis by indicating that each of the 11 goal

subscales is reliably measuring a unidimensional factor across the different cultures. However,

the mean structures of the subscales are varying across the cultures. These results suggest the

absence of between-group differences in some forms of item bias (e.g., translation, extreme

response style; Cheung & Rensvold, 2000; Mullen, 1995), but it remains possible that there are

between-group differences in other response styles (e.g., acquiescence; Cheung & Rensvold,

2000). Because scalar invariance is important in cross-cultural research to compare (latent)

means across cultures[9], any mean difference tests should be interpreted with caution. As this

study's hypotheses about goal structures do not require such comparisons, we can conclude that

the Aspiration Index's reliability is sufficiently invariant across culture to proceed with analyses

of its structure.

Two-Dimensional Representation: Multidimensional Scaling Analyses (H2a)

Validation of the two-dimension solution. As described above, we sought support for the

proposed two-dimensional organization of the 11 goals by applying Davison's (1983) three

criteria of "interpretability," "fit," and "reproducibility." As we believe is demonstrated below,

the "interpretability" criterion received good support, as the two-dimension solution organized

the goal structure in a relatively elegant fashion, and a third dimension was not necessary to

conceptualize this organization. Less subjectively, support for the "fit" criterion came from

analyses of the stress indicators and the R^2 measure using the entire sample. The STRESS

indicators were .40, .10, .05, .02, and .01 for one- to five-dimensional solutions, respectively,

revealing that the addition of a second dimension increased substantially the "fit" (Δ_{STRESS} = .30),

but the third through fifth dimensions did not increase fit as much (Δ_{STRESS} = .05 or less).

Moreover, R^2 measures revealed that the first dimension explained 54% of the variance, a second

dimension added an additional 38%, but the third through fifth dimensions did not add large

enough amounts of variance (i.e., <5%) to warrant their inclusion in the model. In terms of

"reproducibility," similar patterns of results were also found when MDS analyses were conducted

on each of the 15 culture samples individually; here, the median stress indicator for the second

dimension was .11. Moreover, the average R^2-change was 20% for an added second dimension

whereas it was only 5% for a third dimension, suggesting again that adding a third dimension

provided little in the way of additional information. In sum, these results suggest that a two-

dimensional model of goal structure was more parsimonious and valid, as well as more

reproducible across the 15 cultures, than was a model including any other number of dimensions.

    An initial model. Having established that a two-dimensional model worked well to

organize the goals, we next used the MDS analyses to examine whether the goals were organized

in a way supportive of our hypotheses. The MDS analysis based on the entire sample of subjects

yielded the representation in Figure 1.[10] Examination of this figure yields several conclusions.

First, the goal importance ratings do indeed appear to be organized in a circumplex fashion.

Second, one of the dimensions that seemed to organize goal placements (represented in Figure 1

as the vertical dimension) appears quite similar to what we suggested would be "Self-

transcendent vs. Physical." On the top of this dimension are aspirations which represent going

beyond or outside of oneself; spiritual strivings are the primary representation of this end of the

dimension, and community feeling and conformity aspirations are also involved. At the bottom

of this dimension are aspirations which primarily concern the physical body; hedonism

aspirations are especially representative of this, as are safety, physical health, and financial

success aspirations.

The other, horizontal dimension seems to support previous work suggesting that goals are

also organized along an intrinsic vs. extrinsic dimension. On the right of the circumplex are the

theorized intrinsic goals of self-acceptance, affiliation, community feeling, and physical health.

Notably, safety aspirations also fall into this cluster, as would be predicted by Maslovian (1954)

theory. On the left of this axis are the three extrinsic goals found in past research (i.e., financial

success, image, and popularity) as well as the newly-measured conformity goal, which Kasser

(2002b) predicted would fall with these extrinsic goals. In sum, the results suggest that across

cultures people do experience goals as falling along an intrinsic/extrinsic dimension.

The consistency of the model across cultures. Figure 1 presents a model of a

configuration of goals that ignores potential differences between the cultures by averaging across

them. We undertook several different types of analyses to test whether the compatibilities and

conflicts represented in Figure 1 also revealed themselves within individual cultures.

To begin, we computed a measure of the *ipsative* distance between pairs of goals on the

basis of MDS analyses within each culture. As described above, we considered goals to be

compatible if this *ipsative* distance measure was positive and conflictual if it was negative. One

way to examine whether the goal pairs are compatible or conflictual is to calculate the proportion

of cultures (out of the 15) in which the goal pairs were either compatible or conflictual.[11] This

method, however, does not provide an indication of the strength of the compatibility or conflict.

Thus, we also computed the mean ipsative distance for each goal pairing and used *t*-tests to

determine whether this mean ipsative distance score was significantly different from 0 (i.e., the

number which represents neither conflict nor compatibility). We followed this procedure for each goal pair working clockwise around the circumplex and for the clusters of goals at each end of the dimensions resulting from the MDS analyses.

As can be seen in the second and third columns of Table 4 (see also note), each goal type was compatible with its adjacent goal types on the circumplex in at least 10 samples (67%); six of the compatibilities occurred in 14 (93%) or all of the cultures. Further, the mean ipsative distance score was significantly greater than 0 (indicating compatibility) in all but three cases: the compatibilities of conformity and spirituality, of hedonism and safety/ physical health, and of hedonism and financial success. Despite these few variations, the results overall indicate that most cultures agree that goals next to each other in Figure 1 are compatible, and that these compatibilities are reasonably strong.

Next we examined the compatibilities of clusters of goals representing the ends of the two dimensions represented in Figure 1. As can be seen in the bottom portion of Table 4, the intrinsic and extrinsic clusters were each compatible within themselves in all 15 cultures, and the strength of this compatibility was significant (i.e., greater than 0). Results were somewhat weaker for the physical cluster, as it was apparent in only 11/15 cultures, and even weaker for the self-transcendence cluster, which occurred in only 9/15 cultures and whose mean ipsative distance score was not significantly different than 0.

Turning now to the conflicts between clusters, intrinsic and extrinsic goals were clearly in conflict with each other, as were the physical and self-transcendence dimensions. As can be seen there, the intrinsic and extrinsic clusters were each in conflict with each other in all 15 cultures, and the strength of this conflict was significant (i.e., less than 0). A very similar pattern of results can be seen concerning the physical/ self-transcendence conflict.

Wealthier and poorer cultures. Using MDS analyses, we next examined whether the

basic ordering of goals around the circumplex is essentially the same in wealthier (Figure 2a) and

poorer (Figure 2b) cultures. As can be seen in these figures, the ordering is essentially the same,

although three small differences in the relative placement of goals emerged. First, safety and

physical health appeared to be somewhat closer to hedonism (and thus had a somewhat more

physical character) in the wealthier than the poorer cultures. Second, community feeling and

conformity appeared to be somewhat closer to spirituality (and thus had a somewhat more self-

transcendent quality) in the poorer than the wealthier cultures. Third, financial success appeared

to have a somewhat less physical character and a somewhat less extrinsic flavor in the poorer

cultures, although it still fell with the other extrinsic aspirations. Again, however, these small

differences do not eclipse the overall similarity between Figures 2a and 2b.

We next examined the proportion of wealthier and poorer cultures in which ipsative

distance scores for the goal pairings were above or below 0, as above. These results suggested

similar levels of compatibility (or conflict) for wealthier and poorer cultures, except in two cases.

First, the compatibility of physical health-safety and hedonism was weaker in the poorer cultures.

Second, the self-transcendence cluster (i.e., community feeling, spirituality, and conformity) was

not as compatible within itself for the wealthier cultures.

Next, we examined whether the mean ipsative distance scores for compatibilities or

conflicts was different in size between the wealthier and the poorer cultures. Notably, the

degrees of freedom (13) here are quite small, and so results should be treated with extreme

caution. Two significant differences between rich and poor cultures emerged, as reported in

Table 4. First, the extrinsic cluster (i.e., popularity, image, financial success and conformity) of

goals was significantly more compact in wealthier than poorer cultures ($M = -1.01$ vs $M = -0.61$,

$t_{13} = -2.938$, $p < .05$). Second, the self-transcendence goal cluster was more compact in the

poorer cultures ($M = -.50$)[12] than in the wealthier cultures ($M = .07$; $t_{12} = 3.220$, $p < .007$).

Circumplex Representation: CIRCUM Analysis (H2b)

An initial model. We next examined whether the AI would yield a circular configuration,

which is a more specific hypothesis than the prediction that the organization would reflect a two-

dimensional space (Gurtman & Pincus, 2003). This subsequent step (after MDS analysis) is

important because it permits us to validate the circumplex-shape of goal placements on the two-

dimensional representation that the MDS results showed in Figures 1, 2a, and 2b.

The CIRCUM analysis converged (residual cosine<0.0001) after 15 iterations. The

RMSEA was 0.065 (90% confidence interval: 0.058; 0.072), indicating a close fit. All ratios of

reproduced variances to input variances were fairly close to 1, ranging from 0.98 to 1.019. The

estimated polar angles are represented graphically in Figure 3 and their point estimates and 95%

confidence intervals are shown in Table 5. The estimated item communality indices (i.e., the

correlations between measured and common score variables) ranged from .54 to .85. As can be

seen in Figure 3, positions of goal variables on the circle are similar to those obtained with MDS.

This result confirms that the nature of the relationships among goal contents can be described as

an ordering of variables along the circumference of a circle.

Wealthier and poorer cultures. The results from CIRCUM analyses show that the basic

ordering of goals around the circle is essentially the same in wealthier and poorer cultures (see

Table 5). Furthermore, the polar position of the 11 variables is almost identical in wealthier and

poorer cultures (correlation = 0.99). As with MDS, a couple of small differences in the relative

placement of goals emerged, however. First, safety and physical health have somewhat different

positions in the wealthier and poorer cultures. Second, as observed in MDS results, financial

success appeared to have a somewhat less extrinsic flavor in the poorer cultures, being a bit

closer to affiliation than in wealthier cultures (angle = 81° vs. 108°).

Discussion

The current study examined the goal importance ratings of 1,854 college students from 15 cultures around the world in an attempt to better understand: (a) what goals people typically strive for; and (b) how those goals are organized in people's psyches. Given the consistent organizations which have emerged for personality traits (e.g., McCrae & Allik, 2002) and for values (Schwartz, 1992), we were interested in the extent to which consistent results would occur for importance ratings of goal contents.

Overview of Results

We began by demonstrating the reliability and cross-cultural validity of the measure we implemented in this study (the Aspiration Index) through a series of analyses including MACS (Little, 1997). Our results suggested that the 11 goal domains assessed herein each had acceptable internal reliability and measurement equivalence across the 15 cultures. These validity checks on the Aspiration Index also suggested that the 11 different domains of goals we assessed are notable cross-culturally (see Table 1). Multidimensional scaling analyses suggested that two dimensions best summarized the organization of the goals; these MDS analyses along with ipsative distance analyses and confirmatory CIRCUM analyses, further showed that the goal-importance ratings were organized in a very similar circumplex fashion across cultures (see Figures 1 and 3), with some goals viewed as consistent with each other and other goals viewed as being in conflict with each other. Despite a few small cross-cultural variations, the 2–dimensional circumplex organization of goals was essentially the same in both wealthier and poorer nations (see Figures 2a and 2b, and Tables 4 & 5).

The eleven goals that we assessed in this study were on the whole well-organized by two underlying dimensions suggested by previous empirical and theoretical work. The first dimension supports past work from the self-determination theory tradition (e.g., Deci & Ryan, 2000; Kasser, 2002b; Kasser & Ryan, 1996) suggesting that goals differ in terms of whether they are intrinsically oriented and focused on the satisfaction of inherent psychological needs or whether they are extrinsically oriented and focused on rewards and praise. The current data confirmed past research that intrinsically oriented goals included self-acceptance, affiliation, community feeling, and physical health; safety goals also clustered here, in line with predictions derived from Maslovian (1954) theory. Extrinsically oriented goals included financial success, image, and popularity, confirming past work; conformity was also added to this list, as predicted by Kasser (2002b). It is particularly important to note that multidimensional scaling analyses including ipsative distance scores suggested that the intrinsic and extrinsic clusters were strongly consistent within themselves and strongly opposed to each other in all 15 cultures surveyed.

The second dimension represents goals that are primarily concerned with maintaining and enhancing one's own physical pleasure and survival as opposed to those that concern "something higher"; this dimension is reflected not only in religious writings but also in the theories of several psychologists (e.g., James, 1892/1985). Specifically, the self-transcendent end of the dimension involved goals that involve matching society's desires (e.g., conformity), benefiting society and future generations (e.g., community feeling) or seeking out universal meanings and understandings (e.g., spirituality), whereas the physical end concerned bodily pleasures (e.g., hedonism), physical survival (e.g., safety and health), and the material means to both of these (e.g., financial success). Although this self-transcendent vs. physical dimension was clearly identified and the two sets of pursuits were certainly in opposition with each other, we also note that neither self-transcendent nor physical goals were as strongly consistent within themselves as

were intrinsic and extrinsic goals (see results on ipsative distance scores, Table 4). Although this

does not invalidate the self-transcendent vs. physical dimension, it does suggest that the intrinsic

vs. extrinsic dimension is powerful and "attracts" goals on the right and left sides of the two-

dimensional space.

Although the results described above were on the whole consistent in both wealthier and

poorer cultures, two differences based on cultural wealth are worthy of comment. Given the low

degrees of freedom for these analyses, the following speculations should be treated with caution.

First, financial success had a less extrinsic and less physical character in the poorer than the

wealthier cultures. That is, financial success was further from hedonism and closer to

safety/physical health goals in the poorer cultures than in the wealthier cultures. This makes

good sense, given that financial success in poorer cultures is probably more likely to concern

basic survival than in wealthier cultures, where financial success is more often a means to acquire

status and non-essential pleasantries (i.e., goals related to image and popularity; see e.g., Wong &

Ahuvia, 1998). Similarly, the finding that financial success aspiration were somewhat closer to

affiliation in poorer than in wealthier nations might reflect that individuals in poorer nations may

strive to make money in order to ensure the basic welfare of those they care about. Second, the

compatibilities of the clusters defining each end of the self-transcendent versus physical

dimension were somewhat weaker in the poorer than the wealthier cultures. At this point of our

investigations it is unfortunately difficult to explain this last difference between wealthier and

poorer cultures.

Theoretical Implications

The two orthogonal dimensions of Intrinsic vs. Extrinsic and Self-transcendent vs.

Physical provide an interesting and intuitively appealing way to categorize and understand the

nature of different types of goals, and perhaps of human motivational systems. That is, these

results suggest that an understanding of a consciously articulated goal for which a person might

strive can be classified on the basis of how much it is oriented towards inherent psychological

needs or to external rewards/praise and how much it is oriented toward one's own physical

pleasure and survival or towards societally and spiritually self-transcendent aims. To exemplify

this, let us follow the circumplex presented in Figures 1-3 around the circumference, beginning

with spirituality. Spirituality goals are clearly self-transcendent, concerning themselves with

large universal issues outside of one's physical self, but they are inherently neither intrinsic nor

extrinsic in nature, as spirituality is sometimes pursued for satisfaction of intrinsic needs (as

when a sense of communion with one's church is attained) but can also be motivated largely by

punishment and guilt (Ryan, Rigby, & King, 1993). Community feeling has a self-transcendent

quality, being concerned with the welfare of society and future generations, but it is also intrinsic,

as such pursuits can frequently satisfy needs for relatedness, as well as for competence and

autonomy. Self-acceptance and affiliation are clearly intrinsic in nature, as they very directly

relate to the satisfaction of inherent psychological needs, but they fall mid way between the

physical and the self-transcendent, as they primarily concern the personal, psychological realm of

the ego (Freud, 1960), the material/social self (James, 1892/1985), or the individual or relational

selves (Brewer & Gardner, 1996). Physical health and safety also fall with intrinsic goals, as all

people need to feel safe and healthy (Bowlby, 1988, Pyszczynski et al., 1997); these goals are

more physically based than the other intrinsic goals, however, given that health and safety

concern bodily integrity. Hedonism is clearly concerned with the body, although its focus on

pleasure rather than safety moves it out of the realm of intrinsic pursuits; further, the fact that

hedonism can sometimes be pursued for sheer pleasure but frequently is a way to avoid that

which is anxiety provoking (Baumeister, 1991) shows that it is neither inherently intrinsic nor

extrinsic in nature (see also Veenhoven, 2003). Financial success, with its focus on rewards and

social status, is an extrinsic goal but has a physical flavor given that money is typically used to ensure survival and to purchase momentary, fleeting pleasures of the flesh. Image and popularity share an extrinsic character, but are more "self-transcendent" than financial success, with their greater focus on others' opinions. Finally, conformity typifies the blending of extrinsic concerns for fitting in to others' desires with the self-transcendent concern of that which is outside of one's self (i.e., society).

The fact that these characterizations can be made with some degree of generalizability given their consistency across 15 nations suggests that motivational systems, as they concern goals, involve some commonality across people, regardless of their cultural situation. Specifically, as they approach their goals in life, people apparently take into consideration their psychological needs (intrinsic), their physical survival and pleasure (physical), their desires for rewards and praise (extrinsic), and their existential quest to have a meaningful place in the broader world (self-transcendence). These influences on goals might be considered as four occasionally overlapping but sometimes conflictual motivational systems that people must negotiate as they make their way through life. Of course, some individuals will organize their lives more around one of these systems than around others; some will be spiritual individuals who attempt to solve the problems of the world, others will involve themselves in the pleasures of the body, others will pursue wealth and status, and others will look for a simpler life focused on family and personal growth. In future work, we hope to build on this and past research to examine whether such clusters of individuals can be identified, and whether people's well-being relates to the choices they make about how their goals in life represent and blend these basic motivational systems.

On a final theoretical note, it is interesting to see that our present circumplex model had both similarities and differences with Schwartz's (1992) well-known value model. Like

Schwartz, our analyses found that goal-importance ratings were organized in a very similar circumplex fashion across cultures, as some goals were relatively consistent with each other whereas other goals were in conflict with each other. Second, two dimensions were found to underlie the goal-importance ratings, but they were not exactly same as what Schwartz finds in his work on values. The first dimension of intrinsic vs. extrinsic goals that we identified as underlying goal pursuits bears relatively little conceptual similarity to Schwartz's dimension of "openness to change vs. conservatism." The second dimension, which we identified as "self-transcendent vs. physical", certainly bears a conceptual resemblance to Schwartz's self-transcendent vs. self-enhancing dimension, even if the goals comprising the dimensions are not exactly the same. That is, we found that strivings for financial success, hedonism, physical health, and safety that are primarily concerned with maintaining and enhancing one's own physical pleasure and survival do in fact cluster together and oppose another cluster which is concerned with "something higher," be it society's desires (e.g., conformity), benefiting society and future generations (e.g., community feeling) or transcending the self (e.g., spirituality).

Another difference between our results in Figures 1 and 3 and those of Schwartz (1992) concerns the placement of two of the goals in the circumplex. First, Schwartz has found that *conformity* values lie between benevolence and security, whereas in our data, such goals are almost directly opposed to the two parallel goals we assessed (i.e., affiliation and safety). Our understanding of this result is that conformity goals are a type of extrinsic pursuit, given that they primarily concern desires to fit in with others and receive social praise for being "one of the crowd" (see above). Indeed, conformity goals did cluster with other extrinsic goals of image and popularity in 14 of 15 cultures. *Safety* goals were the second pursuit that yielded results rather different from Schwartz's model. Security values in Schwartz's model are wedged between conformity/ tradition and power, whereas our results show safety as opposing these extrinsic-type

pursuits and instead having a physical and intrinsic flavor. We believe these results suggest that

when safety is considered at the level of a personal goal rather than a value, it clusters with other

types of goals that concern the satisfaction of psychological needs. That is, just as intrinsic goals

for self-acceptance, affiliation, and community feeling are relatively good ways to satisfy one's

psychological needs, safety goals might concern other needs whose satisfaction is pre-requisite

for good psychological health. Examination of the items composing the safety goal and the fact

that it landed most closely to physical health goals in the circumplex both suggest that the aim of

safety is primarily about ensuring physical survival, which of course is an important motivator of

human behavior recognized by many theories (see above) and probably a need in its own right

(Kasser, 2002; Maslow, 1968; Sheldon et al., 2001).

Limitations and Future Directions

Although we believe that the present results provide some important information about

the fundamental organization of human strivings and pursuits, our study is of course limited in

many respects. First, research which involves latent variables and latent dimensions such as

those identified via CFA and MDS are not immune from the subjectivity involved in the labeling

process. The present study was no exception. We therefore acknowledge that our labeling of the

two dimensions in the goal circumplex was motivated primarily by our theoretical approach

concerning goal structure. Thus, just as some researchers have re-labeled Schwartz's dimensions

(e.g., Oishi, Schimmack, Diener, & Suh, 1998; Rohan, 2000), we acknowledge that other

researchers may have potentially different ways of labeling the dimensions we identified.

A second limitation of the study concerns sampling. Our sample consisted only of college

students, who of course are not a representative sample of people in general, and are probably

even less representative of people who live in the poorer cultures from which we sampled.

Although the intrinsic/ extrinsic dimension has been found in samples of U.S. and German adults

(Kasser & Ryan, 1996; Schmuck, 2001; Sheldon & Kasser, 2001) and Schwartz and Sagiv (1995) found that the organization of values in college students is quite similar to that for adult teachers, any claims regarding the generalizability of this model must be tempered by this limitation of sampling. Furthermore, we sampled from only 15 cultures and provinces around the world, and although every populated continent was represented, sub-Saharan Africa was notably absent from among the cultures we investigated. And of course all cultures and sub-cultures have their own particularities that make them worthy of sampling, especially if one's aim is to catalogue all possible pursuits and the way in which they are organized.

Third, the measure we used, like all measures, has its limits, and thus it would be interesting to see whether parallel results emerge with other measures that operationalize people's aims in life in other ways. For example, it would be interesting to examine whether idiographic means of assessing people's goals (e.g., Emmons, 1989; Sheldon & Kasser, 1995) result in similar goal organizations. Relatedly, because the Aspiration Index was designed by Westerners it is possible that some goals that non-Westerners pursue were absent and thus unable to influence the form of the circumplex. It would be worthwhile to conduct future studies in which participants from a variety of cultures generate goals, rather than respond to goal items provided by the experimenters. Such research could thus determine if any frequently occurring contents have been missed in the present study and then determine whether the addition of such goals modifies the circumplex organization which we identified in the present study.

Finally, we surely did not sample all possible pursuits for which humans might strive: for example, goals for knowledge or aesthetics (Maslow, 1968) or for ecologically-sustainable ways of living (e.g., Dunlap & Mertig, 1995; Schwartz & Boehnke, 2004; Stern & Dietz, 1994) are notably absent, as are a variety of other goals around which individuals might organize their lives. The real challenge of future research will be to make specific predictions about where any

additional goals might fall in the circumplex we present in Figures 1 and 3. For example, we would hypothesize that goals for knowledge would probably have more of a self-transcendent and intrinsic than physical and extrinsic quality, and would thus fall somewhere close to community feeling in the circumplex; that prediction, like others which might be made, is an empirical question. Further, if enough additional goals were measured, perhaps a third dimension might be identified; thus, we recognize that the present two-dimensional model may not be the final word on goal organization, even though it is seemingly a clear advance over extant models.

In addition to studies addressing the limitations listed above, future research could address a variety of other questions based on the circumplex model of aspirations we have described. For example, we are already in the process of analyzing data to investigate how cultures are similar and/or different in the relative importance they place on the different goals listed in Table 1, and on how ratings of the importance and likelihood of attainment of those goals relate to measures of happiness and well-being. A variety of other constructs might also be predictable from the model presented in Figures 1 and 3, including political, social, and environmental behavior, quality of relationships, personal interests, etc. Further, it would be of great interest to better understand the developmental precursors of the relative importance people place on particular goals (e.g., Kasser, Koestner, & Lekes, 2001; Kasser, Ryan, Zax, & Sameroff, 1995) as well as how the importance they place on different goals changes throughout the lifespan (e.g., Sheldon & Kasser, 2001).

References

Asch, S. E. (1951). Effects of group pressure upon the modification and distortion of judgments.

In H. Guetzkow (Ed), *Groups, leadership and men* (pp. 177-190). Pittsburgh: Carnegie

Press.

Baumeister, R. F. (1991). *Escaping the self: Alcoholism, spirituality, masochism, and other*

flights from the burden of selfhood. New York: Basic Books.

Beauducel, A., &Wittmann, W. W. (2005). Simulation study on fit indexes in CFA based on

data with slightly distorted simple structure. *Structural Equation Modeling, 12*, 41-75.

Bentler, P. M. (1995). *EQS structural equations program manual*. Encino, CA: Multivariate

Software.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York: John Wiley & Sons.

Borg, I., & Groenen, P. (1997). *Modern multidimensional scaling: theory and applications*. New

York: Springer.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*.

New York: Basic Books.

Brewer, M. B. (1991). The social self: On being the same and different at the same time.

Personality and Social Psychology Bulletin, 17, 475-482.

Brewer, M. B., & Gardner, W. L. (1996). Who is this "we"? Levels of collective identity and self

representations. *Journal of Personality and Social Psychology, 71*, 83-93.

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural*

Psychology, 1, 185-216.

Browne, M. W. (1992). Circumplex models for correlation matrices. *Psychometrika, 57*, 469-

497.

Browne, M. W. (1995). *CIRCUM. Notes on usage*. Columbus, OH: Browne.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods and Research, 21*, 230-258.

Buss, D. M. (1999). *Evolutionary psychology: The new science of the mind*. Needham Heights, MA: Allyn & Bacon.

Byrne, B. M., & Campbell, T. L. (1999). Cross-cultural comparisons and the presumption of equivalent measurement and theoretical structure: a look beneath the surface. *Journal of Cross-Cultural Psychology, 30*, 555-574.

Chan, W. (2003). Analyzing ipsative data in psychological research. *Behaviormetrika, 30*, 99-121.

Cheung, G. W., & Rensvold, R. B. (2000). Assessing extreme and acquiescence response sets in cross-cultural research using structural equations modeling. *Journal of Cross-Cultural Psychology, 31*, 187-212.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233-255.

Davidson, M. L. (1983). *Multidimensional scaling*. New York: John Wiley & Sons.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.

Dillon, W. R., & Goldstein, M. (1984). *Multivariate analysis*. New York: John Wiley & Sons.

Dunlap, R. E., & Mertig, A. G. (1995). Global concern for the environment: Is affluence a prerequisite? *Journal of Social Issues, 51*, 121-137.

Emmons, R. A. (1989). The personal striving approach to personality. In L. A. Pervin (Ed), *Goal concepts in personality and social psychology* (pp. 87-126). Hillsdale, NJ: Lawrence Erlbaum Associates.

Emmons, R. A. (1999). *The psychology of ultimate concerns: motivation and spirituality in*

personality. New York: The Guilford Press.

Emmons, R. A., Cheung, C., & Tehrani, K. (1998). Assessing spirituality through personal goals: Implications for research on religion and subjective well-being. *Social Indicators Research, 45*, 391-422.

Fabrigar, L. R., Visser, P. S., & Browne, M. W. (1997). Conceptual and methodological issues in testing the circumplex structure of data in personality and social psychology. *Personality and Social Psychology Review, 1*, 184-203.

Freud, S. (1933). *New introductory lectures in psychoanalysis*. New York: Norton.

Freud, S. (1960). *The ego and the id* (J. Riviere, Trans.; J. Strachey, Ed.). New York: Norton.

Gurtman, M. B., & Pincus, A. L. (2003). The circumplex model: methods and research applications. In J. A. Schinka, & W. F. Velicer (Eds), *Handbook of psychology – Volume 2: Research methods in psychology* (pp. 407-428). Wiley.

Guttman, L. (1954). A new approach to factor analysis: the radex. In P. F. Lazarsfeld (Ed), *Mathematical thinking in the social sciences* (pp. 258-348). Glencoe, IL: Free Press.

Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*(4), 424-453.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

James, W. (1892-1985). *Psychology: the briefer course*. Notre Dame, IN: University of Notre Dame Press.

Kasser, T. (1996). Aspirations and well-being in a prison setting. *Journal of Applied Social Psychology, 26*, 1367-1377.

Kasser, T. (2002a). *The high price of materialism*. Cambridge, Mass: The MIT Press.

Kasser, T. (2002b). Sketches for a self-determination theory of values. In E. L. Deci, & R. M.

Ryan (Eds), *Handbook of self-determination research* (pp. 123-140). Rochester, NY: University of Rochester Press.

Kasser, T., Koestner, R., & Lekes, N. (2002). Early family experiences and adult values: a 26-year, prospective longitudinal study. *Personality and Social Psychology Bulletin, 28*, 826-835.

Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology, 65*, 410-422.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin, 22*, 280-287.

Kasser, T., & Ryan, R. M. (2001). Be careful what you wish for: optimal functioning and the relative attainment of intrinsic and extrinsic goals. In P. Schmuck, & K. M. Sheldon (Eds), *Life goals and well-being: towards a positive psychology of human striving* (pp. 116-131). Seattle, Toronto, Bern, Goettingen: Hogrefe & Huber Publishers.

Kasser, T., Ryan, R. M., Couchman, C. E., & Sheldon, K. M. (2004). Materialistic values: their causes and consequences. In T. Kasser, & A. D. Kanner (Eds), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 11-28). Washington, DC: American Psychological Association.

Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial values. *Developmental Psychology, 31*, 907-914.

Kenny, D. A., & McCoach, D. B. (2003). Effect of the number of variables on measures of fit in structural equation modeling. *Structural Equation Modeling*, *10*, 333-351.

Kim, Y., Kasser, T., & Lee, H. (2003). Self-concept, aspirations, and well-being in South Korea

and the United States. *Journal of Social Psychology, 143*, 277-290.

Larsen, R. J., & Diener, E. (1992). Promises and problems with the circumplex model of

emotion. In M. S. Clark (Ed), *Review of personality and social psychology: emotion*

(Vol. 13, pp. 25-59). Newbury Park, CA: Sage.

Little, T. D. (1997). Mean and covariance structures (MACS) analyses of cross-cultural data:

practical and theoretical issues. *Multivariate Behavioral Research, 32*, 53-76.

Maslow, A. H. (1954). *Motivation and personality*. New York: Harper and Row.

Maslow, A. H. (1968). *Toward a psychology of being* (2nd ed.). New York: Van Nostrand.

McCrae, R. R., & Allik, J. (2002). *The five-factor model of personality across cultures*. New

York: Kluwer Academic.

Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance.

Psychometrika, 58, 525-543.

Morris, C. W. (1956). *Varieties of human values*. Chicago: University of Chicago Press.

Mullen, M. (1995). Diagnosing measurement equivalence in cross-national research. *Journal of*

International Business Studies, 3, 573-596.

Nevitt, J., & Hancock, G. R. (2000). Improving the root mean square error of approximation for

nonnormal conditions in structural equation modeling. *The Journal of Experimental*

Education, 68, 251-268.

Oishi, S., Schimmack, U., Diener, E., & Suh, E. M. (1998). The measurement of values and

individualism-collectivism. *Personality and Social Psychology Bulletin, 24*, 1177-1189.

Pervin, L. A. (1989). *Goal concepts in personality and social psychology*. Hillsdale, NJ:

Lawrence Erlbaum Associates.

Pyszczynski, T., Greenberg, J., & Solomon, S. (1997). Why do we need what we need? A terror

management perspective on the roots of human social motivation. *Psychological Inquiry,*

8, 1-20.

Raykov, T. (1998). On the use of confirmatory factor analysis in personality research. *Personality and Individual Differences, 24*, 291-293.

Roberts, B. W., & Robins, R. W. (2000). Broad dispositions, broad aspirations: the intersection of personality traits and major life goals. *Personality and Social Psychology Bulletin, 26*, 1284-1296.

Rohan, M. J. (2000). A rose by any name? The values construct. *Personality and Social Psychology Review*, *4*, 255-277.

Ryan, R. M., Chirkov, V. I., Little, T. D., Sheldon, K. M., Timoshina, E., & Deci, E. L. (1999). The American dream in Russia: Extrinsic aspirations and well-being in two cultures. *Personality and Social Psychology Bulletin, 25*, 1509-1524.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.

Ryan, R. M., Rigby, S., & King, K. (1993). Two types of religious internalization and their relations to religious orientations and mental health. *Journal of Personality and Social Psychology, 65*, 586-596.

Satorra, A. (2000). Scaled and adjusted restricted tests in multisample analysis of moment structures. In D. D. H. Heijmans, D. S. G. Pollock, & A. Satorra (Eds), *Innovations in multivariate statistical analysis: a Festschrift for Heinz Neudecker*. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Satorra, A., & Bentler, P. M. (1988). Scaling corrections for chi-square statistics in covariance structure analysis. *Proceeding of the American Statistical Association,* 308-313.

Satorra, A., & Bentler, P. M. (1994). Corrections to test statistics and standard errors in covariance structure analysis. In A. von Eye, & C. C. Clogg (Eds), *Latent variables*

analysis: Applications for developmental research (pp. 399-419). Thousand Oaks, CA: Sage.

Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66*, 507-514.

Saunders, S. (2001). Fromm's marketing character and Rockeach values. *Social Behavior and Personality, 29*, 191-196.

Saunders, S., & Munro, D. (2000). The construction and validation of a consumer orientation questionnaire (SCOI) designed to measure Fromm's (1955) "marketing character' in Australia. *Social Behavior and Personality, 28*, 219-240.

Saunders, S., Munro, D., & Bore, M. (1998). Maslow's hierarchy of needs and its relationship with psychological health and materialism. *South Pacific Journal of Psychology, 10*, 15-25.

Schmuck, P. (2001). Intrinsic and extrinsic life goals preferences as measured via inventories and via priming methodologies: Mean differences and relations with well-being. In P. Schmuck, & K. M. Sheldon (Eds), *Life goals and well-being: towards a positive psychology of human striving* (pp. 132-147). Seattle, Toronto, Bern, Goettingen: Hogrefe & Huber Publishers.

Schmuck, P., Kasser, T., & Ryan, R. M. (2000). Intrinsic and extrinsic goals: Their structure and relationship to well-being in German and U. S. college students. *Social Indicators Research, 50*, 225-241.

Schwartz, S. H. (1992). Universals in the context and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed), *Advances in experimental social psychology* (Vol. 25, pp. 1-65). Orlando, FL: Academic Press.

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.

Schwartz, S. H., & Boehnke, K. (2004). Evaluating the structure of human values with confirmatory factor analysis. *Journal of Research in Personality, 38*, 230-255.

Schwartz, S. H., & Sagiv, L. (1995). Identifying culture-specifics in the content and structure of values. *Journal of Cross-Cultural Psychology, 26*, 92-116.

Sedikides, C., & Brewer, M. B. (2001). *Individual self, relational self, collective self*. Philadelphia, PA: Psychology Press.

Sheldon, K. M., & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology, 68*, 531-543.

Sheldon, K. M., & Kasser, T. (1998). Pursuing personal goals: Skills enable progress, but not all progress is beneficial. *Personality and Social Psychology Bulletin, 24*, 1319-1331.

Sheldon, K. M., & Kasser, T. (2001). Goals, congruence, and positive well-being: New empirical support for humanistic theories. *Journal of Humanistic Psychology, 41*, 30-50.

Spini, D. (2003). Measurement equivalence of 10 value types from the Schwartz value survey across 21 countries. *Journal of Cross-Cultural Psychology, 34*, 3-23.

Steenkamp, J.-B. E. M., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research, 25*, 78-90.

Stern, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues, 50*, 65-84.

Tomarken, A. J., & Waller, N. G. (2003). Potential problems with "well-fitting" models. *Journal of Abnormal Psychology, 112*, 578-598.

Veenhoven, R. (2003). Hedonism and happiness. *Journal of Happiness Studies, 4*, 437-457.

Widaman, K. F., & Thompson, J. S. (2003). On specifying the null model for incremental fit

indices in structural equation modeling. *Psychological Methods, 8*, 16-37.

Wong, N., & Ahuvia, A. C. (1998). Personal taste and family face: luxury consumption in

Confucian and Western societies. *Psychology and Marketing, 15*, 423-441.

Young, P. T. (1961). *Motivation and emotion: a survey of the determinants of human and animal*

activity. New York: Wiley.

Authors Note

Frederick M. E. Grouzet, School of Psychology, University of Ottawa, Ottawa, ON, Canada; Tim Kasser, Department of Psychology, Knox College, Galesburg, IL, USA; Aaron Ahuvia, Department of Management Studies, University of Michigan, Dearborn, MI, USA; José Miguel Fernández Dols, Departemento de Psicología Social y Metodología, Universidad Autónoma de Madrid, Madrid, Spain; Youngmee Kim, Behavioral Research Center, American Cancer Society, Atlanta, GA, USA; Sing Lau, Center for Child Development, Hong Kong Baptist University, Hong Kong; Richard M. Ryan, Department of Clinical and Social Sciences in Psychology, University of Rochester, Rochester, NY, USA; Shaun Saunders, University of Newcastle, Australia; Peter Schmuck; Department of Psychology, Technical University of Berlin, Berlin, Germany; and Kennon M. Sheldon, Department of Psychology, University of Missouri, Columbia, MO, USA.

After the first two authors, the remainder are ordered alphabetically.

Correspondence concerning this article should be addressed to Frederick M.E. Grouzet, Department of Educational and Counselling Psychology, McGill University, 3700 McTavish, Montreal, Quebec, Canada, H3A 1Y2, e-mail, fgrouzet@sympatico.ca, or to Tim Kasser, Department of Psychology, Knox College, 2 East South Street, Galesburg, IL, USA, 61401-4999, e-mail, tkasser@knox.edu.

Footnotes

[1] It is difficult to conclude any equivalence across culture from Spini's results because

$\Delta SB\chi^2$ statistics were not correctly estimated. As we explained later in "Method" section,

Satorra (2000) showed that the difference between two $SB\chi^2$ cannot be obtained by computing

the simple difference between them (see Satorra & Bentler, 2001). Moreover, ΔRMSEAs cannot

be criteria because "FITMOD does not compare two RMSEA indices" (Browne, personal

communication, April 14, 2003).

[2] Wealthier nations, with a couple of exceptions, tended to be relatively individualistic,

whereas poorer nations tended toward collectivism. Given this, any similarity or difference could

be interpreted also according to this individualistic/collectivistic dimension. It would be

interesting to examine whether self-transcendence goals such as conformity and community

feeling goals could possess different meaning in collectivistic and individualistic cultures.

[3] As Little notes (1997, note 1), "strong factorial invariance is less biasing than strict

factorial invariance (i.e., wherein residual variances are also equated; Meredith, 1993) […]" and

"[…] in practical applications of cross-cultural research […] an invariant measurement space can

be specified."

[4] More specifically, the "acceptable" independence null model we used corresponds to

Widaman and Thompson's (2003) "Model OB" (p. 25, Fig. 1) where, besides constraining the

covariances among all manifest variables to zero (only the variance and mean of each manifest

variable are freely estimated; these constraints correspond to the traditional independence null

model), the intercepts are constrained to be equal across groups.

[5] The formula used to calculate the distance between 2 points in a two-dimension space is:

$$d_i = \sqrt{(|x_{i1}-x_{i2}|^2 + |y_{i1}-y_{i2}|^2)};$$

where x_{i1} and x_{i2} are the first (horizontal) axis coordinates for the points 1 and 2, and y_{i1} and y_{i2} are the second (vertical) axis coordinates for the points 1 and 2.

[6] An *ipsative* (from the Latin *ipse*: he, himself) transformation involves standardizing the score within the individual's scores (see e.g. Chan, 2003). Here, the *ipsative* distance scores were calculated <u>within culture's scores</u> with the following formula:

$$id = (d_i - M_{\Sigma D})/\sigma_{\Sigma D},$$

where d_i is the distance score for the i pair, $M_{\Sigma D}$ is the mean of all the 10×11 d_i, and $\sigma_{\Sigma D}$ is the standard deviation of all the 10×11 d_i. Using this formula, smaller distance scores (which represent *consistency* between two goals) result in *negative* ipsative scores, whereas larger distance scores (which represent *in*consistency) result in *positive* ipsative scores. To avoid such "illogical" associations between "consistency" and "negativity", and between "inconsistency" and "positivity", we reversed the ipsative distance scores multiplying them by -1.

[7] Recently, Schwartz and Boehnke (2004) tended to confirm the Schwartz's circumplex value structure, using standard confirmatory factorial analysis (CFA). Although, CFA is well-suited to analyze interrelation among latent variables, it cannot test the circumplex assumptions as defined by Gurtman and Pincus (2003). However, CIRCUM has been elaborated for this specific purpose. Further program developments are needed in order to allow SEM programs to simultaneously model factorial and circumplex structures.

[8] Browne (1992) has demonstrated that circulant matrix can be "reparametrized" as a Fourier series, such as:

$$r_{ij} = \beta_0 + \sum \beta_k . \cos (k \times \theta_d)$$

with $k=1$ to m components in the Fourier series, and where r_{ij} is the correlation of variables i and j, and θ_d is the angular discrepancy between their respective polar angles.

[9] The hypothesis of equivalent intercepts across numerous samples (e.g., more than 10) is difficult to reach, as found by Spini (2003) with the Schwartz's values. Of course, partial equivalence could also have been tested to assess equivalence in a smaller number of nations, but we shared the Spini's and Schwartz's objectives considering only universality and, so, full invariance.

[10] It should be recalled here that MDS analysis yields a two-dimensional space representation without meaningful axes. Positions of the orthogonal axes according to each other (i.e., where the two axes cross each other) are essentially arbitrary and guided by the hypothesis. Therefore, axes should be considered as two orthogonal continuums rather than frontiers which organize goals in rigid categories.

[11] For compatibilities among goal types, we reported the mean of distances for each possible pairs of value type. For instance, in the case of the "conformity/ spirituality/ community feeling" cluster, we reported the mean of the conformity-spirituality, the community feeling-conformity, and the spirituality-conformity *ipsative* distances. For conflicts among value types, we reported the mean of distances for each possible conflict of value type. For instance, in the case of the "affiliation/ self-acceptance *vs.* appearance/ social recognition" conflict, we reported the mean of the affiliation-appearance, the affiliation-social recognition, the self-acceptance-appearance, and the self-acceptance-social recognition *ipsative* distances.

[12] It should be noted that we dropped out Chinese sample in this t-test because it seemed to be an outlier. The mean for the poorer nation group including China was $-.30$, and the t-test was close to significance: $t_{13}=1.747$, $p<.10$.

Table 1

Goal Contents, Descriptions, and Sample Items

Goal contents	Description	Sample items
Affiliation	To have satisfying relationships with family and friends	"I will have a committed, intimate relationship."
Community feeling	To improve the world through activism or generativity	"I will assist people who need it, asking nothing in return."
Conformity	To fit in with other people	"I will live up to the expectations of my society."
Physical health	To feel healthy and free of illness	"I will be physically healthy."
Hedonism	To experience much sensual pleasure	"I will experience a great deal of sensual pleasure."
Image	To look attractive in terms of body and clothing	"My image will be one other's find appealing."
Financial Success	To be wealthy and materially successful	"I will be financially successful."
Popularity	To be famous, well-known, and admired	"I will be admired by many people."
Safety	To ensure bodily integrity and safety	"I will have few threats to my personal safety."
Self-Acceptance	To feel competent and autonomous	"I will have insight into why I do the things I do."
Spirituality	To search for spiritual or religious understanding	"I will find religious or spiritual beliefs that help me make sense of the world."

Table 2

Characteristics of Samples.

Culture	Region/ Town	N	Language	Sex (% of female)	Age	Race (majority)	Religion (majority)	Marital status (% of single)	Year
Australia	Newcastle	91	English	65.9	24.70	95.3% Caucasian	39.5% Protestant 29.6% Atheist 25.9% Catholic	87.1	1998-99
Bulgaria	Sofia	106	Bulgarian	79.2	21.91	100% Caucasian	89.4% Orthodox	90.2	1998
Canada	Montreal, Province of Quebec	164	French	84.8	24.94	95.2% Caucasian	72.3% Catholic 22.0% Atheist	72.0	2000
China	Beijing	94	Chinese	25.5	21.43	100% Asian	—	84.0	1998
China	Hong-Kong	94	Chinese	70.2	20.41	81.5% Asian	100% Protestant	100	1998
Colombia	Bogota	146	Spanish	50.7	20.27	—	—	100	1998
Dominican Republic	Santo Domingo	70	Spanish	52.9	22.79	—	—	83.3	1998

Table 2 (*continued*)

Culture	Region/ Town	*N*	Language	Sex (% of female)	Age	Race (majority)	Religion (majority)	Marital status (% of single)	Year
Egypt	Cairo	105	English	58.7	20.38	97.0% Arabian	70.9% Islamic	89.0	1998
France	Tours	108	French	54.6	20.48	88.4% Caucasian	55.0% Atheist 35.0% Catholic	93.4	2000
Germany	Goettingen	150	German	60.0	21.67	100% Caucasian	64.1% Protestant 19.3% Atheist 18.7% Catholic	98.7	1998
India	Bombay	123	English	63.3	20.17	98.3% Asian	75.6% Hindu	95.8	1996
Romania	Brasov	100	Romanian	50.0	21.15	—	95.9% Protestant	95.0	1998
South Korea	Seoul	201	Korean	30.5	21.66	100% Asian	53.3% Protestant 24.8% Catholic 20.2% Buddhist	98.5	1997
Spain	Madrid	138	Spanish	56.9	22.32	—	—	99.3	1998

Table 2 (*continued*)

Culture	Region/ Town	N	Language	Sex (% of female)	Age	Race (majority)	Religion (majority)	Marital status (% of single)	Year
U.S.A.	Columbia, MO	164	English	64.2	18.59	83.2% Caucasian	50.3% Protestant 25.5% Catholic	98.2	1997
TOTAL		1854		57.6	21.48	—		92.9	

Table 3

Overall Fit Indices for the Configural Models (i.e., Without Equality Constraints), the Equal Factor Loadings Models (Metric

Invariance), and the Equal Means Loadings (Scalar Invariance), and the Change in Fit.

| | Items | SB Chi-Square | | | | Absolute Fite Indices | | | Comparative Fit Indices | | | |
		SB χ^2	df	p	CFI	SRMR	RMSEA	RMSEA CI	ΔSB-χ^2	Δdf	p	ΔCFI
Hedonism	3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Metric invariance	3	**31.7894**	**28**	**0.283**	**0.997**	**0.065**	**0.009**	**0.000;0.021**	N.A.	N.A.	N.A.	N.A.
Scalar invariance	3	352.9836	56	0.000	**0.956**	0.152	**0.054**	**0.048;0.059**	391.44	28	0.000	-0.041
Safety	4	**38.2179**	**30**	**0.144**	**0.995**	**0.032**	**0.012**	**0.000;0.023**				
Metric invariance	4	121.0954	72	0.000	**0.970**	0.096	**0.019**	**0.013;0.025**	81.81	42	0.000	-0.025
Scalar invariance	4	451.4008	114	0.000	0.928	0.121	**0.040**	**0.036;0.044**	426.05	42	0.000	-0.042
Physical health	4	149.1787	30	0.000	**0.950**	**0.063**	**0.046**	**0.039;0.054**				
Metric invariance	4	236.2161	72	0.000	0.932	0.137	**0.035**	**0.030;0.040**	96.74	42	0.000	**-0.019**
Scalar invariance	4	861.3459	114	0.000	0.858	0.394	**0.060**	0.056;0.063	1027.56	42	0.000	-0.074

Table 3 (continued)

	Items	SB Chi-Square				Absolute Fite Indices			Comparative Fit Indices			
		SB χ^2	df	p	CFI	SRMR	RMSEA	RMSEA CI	ΔSB-χ^2	Δdf	p	ΔCFI
Self-acceptance	7	325.1833	210	0.000	**0.956**	**0.065**	**0.017**	**0.013;0.021**				
Metric invariance	7	426.2373	294	0.000	**0.950**	0.105	**0.016**	**0.012;0.019**	**102.55**	**84**	**0.083**	**-0.006**
Scalar invariance	7	986.0803	378	0.000	0.907	0.124	**0.030**	**0.027;0.032**	939.00	84	0.000	-0.043
Affiliation	5	**99.6315**	**75**	**0.030**	**0.985**	**0.047**	**0.013**	**0.004;0.020**				
Metric invariance	5	**164.0732**	**131**	**0.027**	**0.980**	0.100	**0.012**	**0.004;0.017**	**65.47**	**56**	**0.181**	**-0.005**
Scalar invariance	5	420.4861	187	0.000	0.943	0.111	**0.026**	**0.023;0.029**	375.68	56	0.000	-0.037
Community feeling	3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Metric invariance	3	**33.1505**	**28**	**0.230**	**0.996**	**0.067**	**0.010**	**0.000;0.021**	N.A.	N.A.	N.A.	N.A.
Scalar invariance	3	134.6749	56	0.000	**0.987**	**0.071**	**0.028**	**0.022;0.033**	113.07	28	0.000	**-0.009**
Spirituality	5	119.8520	75	0.001	**0.995**	**0.034**	**0.018**	**0.012;0.024**				
Metric invariance	5	231.3218	131	0.000	**0.988**	0.100	**0.020**	**0.016;0.025**	116.43	56	0.000	**-0.006**
Scalar invariance	5	553.7881	187	0.000	**0.982**	0.114	**0.033**	**0.029;0.036**	426.12	56	0.000	**-0.006**

Table 3 (continued)

| | Items | SB Chi-Square | | | | | | | Comparative Fit Indices | | | |
		SB χ^2	df	p	CFI	SRMR	RMSEA	RMSEA CI	ΔSB-χ^2	Δdf	p	ΔCFI
Conformity	4	74.7544	30	0.000	**0.987**	**0.058**	**0.028**	**0.020;0.036**				
Metric invariance	4	167.4642	72	0.000	**0.972**	0.095	**0.027**	**0.021;0.032**	91.77	42	0.000	**-0.015**
Scalar invariance	4	1382.3340	114	0.000	0.848	0.324	0.078	0.074;0.081	1879.05	42	0.000	-0.124
Popularity	3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Metric invariance	3	32.0619	28	**0.272**	**0.998**	**0.064**	**0.009**	**0.000;0.021**	N.A.	N.A.	N.A.	N.A.
Scalar invariance	3	203.5553	56	0.000	**0.988**	**0.074**	**0.038**	**0.032;0.043**	190.30	28	0.000	**-0.010**
Image	5	138.0259	75	0.000	**0.980**	**0.052**	**0.021**	**0.016;0.027**				
Metric invariance	5	262.8648	131	0.000	**0.958**	0.103	**0.023**	**0.019;0.027**	126.34	56	0.000	-0.022
Scalar invariance	5	907.6270	187	0.000	0.909	0.197	**0.046**	**0.043;0.049**	891.10	56	0.000	-0.049
Financial success	4	110.8379	30	0.000	**0.978**	**0.042**	**0.038**	**0.031;0.046**				
Metric invariance	4	194.7192	72	0.000	**0.966**	0.100	**0.030**	**0.025;0.035**	80.68	42	0.000	**-0.012**
Scalar invariance	4	513.0700	114	0.000	**0.953**	0.113	**0.044**	**0.040;0.047**	373.01	42	0.000	**-0.013**

Table 3 (continued)

Note. SB χ^2 = Satorra-Bentler adjusted chi-square; CFI = Robust confirmatory fit index (Bentler, 1990) based on the "acceptable" null model SB chi-square (see text) (CFI>0.95 in bold); SRMR = Standardized root mean square residual (SRMR<0.08 in bold); Robust RMSEA = Root mean square error of approximation (RMSEA<0.06 in bold); CI = Confidence interval (upper limit <0.08 in bold); ΔSBχ^2 = difference in SB χ^2 for nested models (i.e., the configural versus the metric invariance models; the metric invariance versus the scalar invariance models) adjusted following Satorra and Bentler (2001; see text) (***p<.01); ΔCFI = difference in CFI for nested models (absolute ΔCFI<.02 in bold).

Table 4

Hypothesis Testing on Compatibilities and Conflicts Among Goal Types.

	Proportion of Cultures ($n = 15$)	Mean ipsative distance	Wealthier Cultures ($n = 8$)	Poorer Cultures ($n = 7$)	T-test on ipsative distances between wealthier and poorer cultures ($df = 13$)[b]
Compatibilities (*circumplex-like perspective two-by-two*)					
Spirituality — Community feeling	13/15	0.54**	7/8	6/7	–0.570ns
Community feeling — Affiliation/ Self-acceptance[a]	13/15	0.56**	6/8	7/7	–0.665ns
Affiliation/ Self-acceptance[a] — Physical health/ Safety[a]	14/15	0.69***	8/8	6/7	1.370ns
Physical health/ Safety[a] — Hedonism	11/15	*0.62**	7/8	4/7	0.059ns
Hedonism — Financial Success	12/15	*0.46**	6/8	6/7	–1.369ns
Financial Success — Image/ Popularity[a]	15/15	1.08***	8/8	7/7	1.417ns
Image/ Popularity[a] — Conformity	14/15	0.64***	8/8	6/7	*2.988**
Conformity — Spirituality	10/15	0.33ns	5/8	5/7	–0.665ns

Table 4 (continued)

	Proportion of Cultures (*n* = 15)	Mean ipsative distance	Wealthier Cultures (*n* = 8)	Poorer Cultures (*n* = 7)	T-test on ipsative distances between wealthier and poorer cultures (*df* = 13)[b]
Compatibilities (*dimensional perspective by cluster*)					
Community feeling/ Affiliation/ Self-acceptance/ Physical health/ Safety (i.e., Intrinsic) cluster	15/15	0.67***	8/8	7/7	–0.492ns
Conformity/ Image/ Popularity / Financial success (i.e., Extrinsic) cluster	15/15	0.82***	8/8	7/7	*2.938**
Community feeling/ Spirituality/ Conformity (i.e., Self-Transcendence) cluster	9/15	0.11ns	3/8	6/7	–1.746ns
Financial success/ Hedonism/ Safety/ Physical health (i.e., physical self) cluster	11/15	0.51**	5/8	6/7	–0.945ns

Table 4 (continued)

	Proportion of Cultures (n = 15)	Mean ipsative distance	Wealthier Cultures (n = 8)	Poorer Cultures (n = 7)	T-test on ipsative distances between wealthier and poorer cultures (df = 13)[b]
Conflicts (*dimensional perspective cluster-against-cluster)*					
Community feeling/ Affiliation/ Self-acceptance/ Physical health/ Safety *vs.* Conformity/ Image/ Popularity Financial Success (i.e., Intrinsic *vs.* Extrinsic)	15/15	–0.46***	8/8	7/7	–0.044ns
Conformity/ Spirituality/ Community feeling *vs.* Financial Success/ Hedonism/ Physical health/ Safety (i.e., Self-transcendence *vs.* Physical self)	15/15	–0.66***	8/8	7/7	–0.904ns
Community feeling *vs.* Appearance/ Social recognition/ Financial Success	14/15	0.99**	8/8	6/7	2.171†
Conformity *vs.* Affiliation/ Self-acceptance/ Physical health/ Safety	12/15	0.71**	6/8	6/7	–0.996ns

Table 4 (continued)

Note. (a) Compatibilities between Affiliation/Self-acceptance (15/15; -1.51^{***}), Physical health/Safety (13/15; -0.97^{***}),

Appearance/Social recognition (14/15; -1.37^{***}) were *strong* and then they were considered as pair rather than individually. (b)

Between-group coding is "wealthy cultures"=1 and "poorer cultures=2"; Levene's tests for equality of variances were non significant,

excepted for "horizontal vs vertical values in conflict" for which *df*=7.724. ns = *p*>.10; † = *p*<.10; * = *p*<.05; ** = *p*<.01; *** = *p*<.01.

Test statistics in *italic* were non significant after Bonferroni adjustment according to Jaccard and Wan's (1996, p. 30) method.

Table 5

Point Estimates and 95% Confidence Intervals (in parenthesis) of Variable Polar Angles for the

Total Sample (*n* = 1854), As Well As for Wealthier (*n* = 815) and Poorer (*n* = 1039) Culture

Groups

	Total sample		Wealthier cultures		Poorer cultures	
Affiliation	0°	(0;0)	0°	(0;0)	0°	(0;0)
Self-acceptance	6°	(0;12)	6°	(355;17)	1°	(353;8)
Physical health	31°	(24;37)	32°	(16;47)	34°	(25;43)
Safety	31°	(24;39)	37°	(24;49)	32°	(23;41)
Hedonism	59°	(51;68)	67°	(50;84)	63°	(52;74)
Financial success	105°	(98;113)	108°	(95;122)	81°	(71;91)
Image	138°	(131;146)	135°	(122;148)	129°	(119;140)
Popularity	147°	(139;155)	139°	(125;153)	144°	(132;156)
Conformity	184°	(175;193)	174°	(158;190)	192°	(180;205)
Spirituality	248°	(238;259)	252°	(235;269)	274°	(260;289)
Community feeling	297°	(289;305)	284°	(270;299)	292°	(281;302)

Correlation between wealthier and poorer culture point estimates =   *0.99*

Figure Caption

Figure 1. Two-dimensional representation of the goals, resulting from multidimensional scaling analysis for all samples.

Figure 2 (a & b). Two-dimensional representation of the goals, resulting from multidimensional scaling analysis for wealthy countries (a) and poor countries (b).

Figure 3. Circular representation of the goals, resulting from CIRCUM analysis for all samples.