Validation of the Spanish-Language Version of the Resistance to Change Scale

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Abstract

The authors examined the validity of the Spanish-language version of the dispositional Resistance to Change (RTC) scale. First, the structural validity of the new questionnaire was evaluated using a nested sequence of confirmatory factor analyses. Second, the external validity of the questionnaire was assessed, using the four higher-order values of the Schwartz's theory and the four dimensions of the RTC scale: *routine seeking, emotional reaction, short-term focus* and *cognitive rigidity*. A sample of 553 undergraduate students from Mexico and Spain was used in the analyses. The results confirmed both the construct structure and the external validity of the questionnaire.

Keywords: Resistance to change; Scale development; Spanish-language Version.

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Prominent characteristics of modern society include the rapid and profound changes people have to face in every context of their lives (e.g., social, technological, educational, familial). Organizations are among the main sources of these changes, introducing constant modifications to their processes to adapt to environment's demands, with the purpose of increasing their competitiveness.

Change processes have therefore been situated in the hub of organizations' actions, which is why individual's psychological responses to such changes are becoming a key area of research, as well as a critical management issue. In this context, a valid instrument for assessing these psychological responses to change, could prove very beneficial to researchers and practitioners involved in the management of change. The purpose of the present study is to validate the Spanish-language version of the resistance to change scale.

The literature on the psychological responses to change shows two clear perspectives (Chen & Wang, 2007): one focuses on identifying the psychological reactions to change, such as coping with change, readiness to change, openness to change, and resistance to change (Cunningham, Woodward, Shannon, Maclntosh, Lendrum, & Rosenbloom, 2002; Judge, Thoresen, Pucik & Welbourne, 1999; Piderit, 2000; Wanberg & Banas, 2000). The other addresses the influence of individual differences on psychological reactions to change. Among the individual differences that have been found to correlate with these reactions are locus of control, self-esteem, general self-efficacy and tolerance to ambiguity (Judge et al., 1999; Lau & Woodman, 1995; Wanberg & Banas, 2000). More recently, the construct of dispositional resistance to change has been established as a key contributor to individuals' reactions to change (Oreg, 2003).

The Dispositional Resistance to Change Scale

Drawing from the large body on research of resistance to change, Oreg (2003) proposed the existence of a multidimensional construct that he called "dispositional resistance to change" (RTC). The concept taps individuals' inherent tendency to resist changes: while some people openly accept and adapt to changes, others show an inclination to avoid and oppose them. According to Oreg (2006), those who are dispositional resistant to change are less likely to voluntarily initiate changes in their lives, and are more likely to form negative attitudes towards specific changes they encounter.

Dispositional resistance to change comprises four dimensions: *routine seeking, emotional reaction, short-term focus* and, *cognitive rigidity*. *Routine seeking* involves the extent to which individuals prefer conventional and highly predictable tasks, procedures, and environments. *Emotional reaction* is focused on the extent to which individuals experience discomfort, lack of enthusiasm, and anxiety when changes are imposed upon them. *Short-term focus* addresses the degree to which individuals worry about all inconveniences and discomfort that change brings about, instead of focusing on the potential benefits and comfort that it could bring in the long term. Finally, *cognitive rigidity* involves individual's inflexibility in thinking and difficulty in accepting alternative ideas, perspectives, and methods.

A close look to the definitions described above suggests that both, *emotional reaction* and *short-term focus* share affective roots (Oreg, 2003): once the change is perceived by the subject, a cognition is processed, and either a negative or positive reaction is derived against or in favor of change. The response could be immediate (i.e., *emotional reaction*), or could take some time to appear, while the individual conceives the complete set of inconveniences change will bring in the near future (i.e., *short-term focus*).

The influence of dispositional resistance to change is not context specific and is expected to influence on individuals' reactions to change across contexts and over time (Oreg, 2003).

The four dimensions of the construct have been operationalized through the resistance to change scale (RTC), a questionnaire containing 17 items. The composite RTC score has been shown to predict individuals' reactions to change in a variety of contexts under both voluntary and imposed conditions (Oreg, 2003; 2006). The RTC scale has been used as a measure of dispositional resistance to change in samples comprised of English speakers, mostly from the U.S. This article constitutes an effort to demonstrate the validity of the RTC scale in a different language.

The 2000 U.S. Census data revealed that Hispanics represent the largest linguistic minority group in the United States (Grieco & Cassidy, 2001). In Canada, Hispanics are the seventh largest minority (Canada Bureau of Census, 2001). In addition, migration continues to produce sizable populations of Latin American immigrants and refugees with limited proficiency in English. This continuing trend increases the need that researchers in the U.S. and Canada, as well as in Latin America and Spain, have at their disposal Spanish-language versions of measures of various constructs typically explored in psychological and organizational research.

To facilitate cross-cultural research pertaining to the attitudes and beliefs that individuals have towards changes, we sought to develop and evaluate the construct validity of a Spanish-language version of the recently published RTC measure (Oreg 2003). Furthermore, we wish to establish the external validity of the Spanish version by considering relationships between dispositional resistance to change and personal values.

Values and resistance to change.

Values have been generally referred to as needs, beliefs, or norms. Values can be best understood as cognitive representations of universal needs (Rokeach, 1979; Schwartz, 1992). According to Schwartz and Rokeach, values occupy a central position in the cognitive system of the subject, having a determinant influence on perceptions, attitudes, and decision making processes. Accordingly, it is logical to believe that individuals' value priorities could just as well influence their predisposition to resist change.

The universal theory of the content of values (Schwartz, 1992), establishes that the essence of a value is the motivational goal it expresses. Based on this idea, the author has derived 10 types of values that conforms a dynamic structure (see figure 1), where types sharing a similar motivational goal appear closer between them (for a full description of the 10 motivational types see Schwartz, 1992), while types representing incompatible motivational goals occupy opposite places in the continuum.

The basic structure of ten value types has been validated in more than 60 countries worldwide and has been used to explain and predict how value structures are related to diverse attitudes and behaviors (Schwartz, Melech, Lehmann, Burguess, Harris, & Owen, 2001).

As seen in figure 1, the ten types comprise four higher-order values. It is possible to distinguish two large bipolar dimensions, and each dimension presents opposed, higher-order values on each of its poles.

The four higher-order values are labeled: *self-enhancement*, *self-transcendence*, *openness to change* and *conservation*. The first two are part of a bipolar dimension that refers to opposite motivational objectives: one to enhance personal interests, even at the expenses of others, and the other to transcend selfish concerns and promote the welfare of others. The other bipolar dimension clusters two different objectives: one refers to the

extent to which they motivate persons to follow their intellectual and emotional interests and being open to changes, while the other is centered on preserving the status quo and the stability in relations with other persons and institutions (Schwartz, 1992).

Based on the nature of the higher-order values *conservation* and *openness to change*, we expect high and positive correlations between each of the four dimensions of the construct of RTC and *conservation*, and high and negative correlations with *openness to change*. Concerning the correlations with the other two higher-order values, we expect low correlations. This assessment will allow us to demonstrate the external validity of the new developed instrument for operationalizing RTC for Spanish speaking students.

Method

Participants

Participants in this study were college undergraduates from Business Administration and related fields (e.g., International Business, Marketing) from three different universities in Mexico, and from one in Spain. The questionnaire used in this study was administered to 265 individuals in Mexico and 288 in Spain. The total number of participants was 553. The mean age of the total sample was 21.3 (*sd*=1.88), 55.1% were female and 44.9% male.

Measures

Dispositional Resistance to Change. In order to develop the Spanish version of the RTC (Oreg, 2003) a translation-back-translation process was followed based on the method proposed by Brislin (1986). First, a team of two undergraduate students and two professors, all proficient in English but whose mother tongue was Spanish, independently translated each of the items of the questionnaire into Spanish. The four translators were asked to use wording and grammar that could be understood by any adolescent. Once the four versions

were gathered and compared, a consolidated version was developed through team discussion with the aim of reaching a consensus.

The consolidated version was then back-translated into English by two bilingual native English speakers. Any discrepancies between the original version in English and the back-translated Spanish versions were analyzed and resolved by the researchers. This version was discussed and edited by the authors (one Mexican and one Spaniard) to remove wording that were meaningful in only one of the two countries; the main purpose of this final step, was to obtain a decentered version of the RTC in Spanish.

The 17 Spanish items are listed in the Appendix. Respondents are asked to rate their extend to which they agree with each of the items using a six-points, Likert-type scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*)

Values. Values were assessed using a Spanish version of the *Portrait Values Questionnaire* (PVQ; Schwartz et al., 2001), previously used in other studies (e.g., Arciniega, Woehr, & Poling, 2006). The 40-items PVQ measures the ten value types, and the four higher-order values proposed by Schwartz (1992). Respondents are asked to rate how much they agree with each item on a scale from 1 (*not like me at all*) to 6 (*very much like me*). The PVQ has been used in several studies, across numerous countries, and has been shown to be a reliable and valid measure of personal values (e.g. Koivula & Verkasalo, 2006).

Analysis

For the purpose of evaluating the construct validity of the RTC measure, we computed a nested sequence of confirmatory factor analyses using LISREL 8.80 (Joreskog & Sorbom, 2006) on each of the two samples independently. First, we assessed the goodness of fit of the data to a single-factor model, indicating a global uniform construct.

We then tested a model with four oblique dimensions, and finally, a model with four first-order factors loading on a second-order factor.

Secondly, we selected the model that best represented the construct structure in both samples. After that, and considering we collected data in two different cultures, we computed a sequence of multi-group confirmatory factor analyses (MG CFA's) with incremental restrictions in order to assess measurement equivalence between the Mexican and the Spanish samples (for a full description of the method for assessing measurement equivalence using MG CFA's, see Vanderberg & Lance 2000).

Thirdly, we computed a CFA of a model including the latent variables of the RTC and the four higher-order values along with a method bias latent variable in order to diagnose the possibility of bias due to mono-method variance since we used self-reported measures exclusively. Once common method bias was controlled, we analyzed the correlations between the dimensions of the RTC measure and the four higher-order values of Schwartz, with the purpose of assessing the external validity of the RTC scale (Podsakoff, Mackenzie, Lee & Podsakoff, 2003).

Results

Confirmatory factor analyses were conducted to examine the fit of the proposed construct structure models for the RTC measure to the data of each of the two samples. First, the data was tested for normality. Multivariate normality in the data was assessed through Mardia's statistic test, which is based on functions of skewness and kurtosis. It is suggested that Mardia's PK should be less than 3 to undertake the assumption of multivariate normality. In both samples we obtained indexes lower than 3, 1.18 in the Mexican sample and 1.16 in the Spanish sample, indicating that multivariate normality was not violated. Although the ML has been demonstrated that is robust to minor departures in

normality (Chou & Bentler, 1995), the robust estimator χ^2_{S-B} proposed by Satorra & Bentler (1994) has been used in this study, since it has shown is a very well-behaved estimator across different levels of non-normality.

Table 1 reports the fit indices for each of the models on each of the two samples. For Model 1, the CFI was .716 for the Mexican sample, and of .758 for the sample from Spain. The RMSEA was .127 and .123 respectively, reflecting a poor fit of the uni-dimensional structure.

Model 2 reflects the notion of RTC as a multidimensional construct with four oblique latent variables (see items associated to each dimension in the Appendix). The χ^2_{S-B} difference test comparing Models 1 and 2 in both samples were significant (Mexico: $\Delta\chi^2_{S-B\ (6)}$=393.55, p<0.001, Spain: $\Delta\chi^2_{S-B\ (6)}$=429.41, p<0.001). An examination of the increase in the other fit indices across models also indicates the substantial improvement of Model 2 over Model 1: The CFI increased from .716 to .943 (ΔCFI=.227) for the Mexican sample and from .758 to .959 (ΔCFI=.201) for the Spanish sample, the same increasing pattern occurred with the NNFI.

An examination of the factors covariance structure provided additional information pertaining to the appropriateness of Model 2. Consistent with Oreg's (2003) findings, the four latent variables were highly correlated. In the Mexican sample the mean correlation between the four factors was of .42 (*SD*=.207, *max*=.724, *min*=.220), meanwhile in the Spanish sample was of .43 (*SD*=.205, *max*=.723, *min*=.229). There was a particularly high correlation (Mexico .724, Spain .723) between *emotional reaction* and *short-term focus* (p<.001). These results are also consistent with Oreg's (2003) findings. This calls for a test of a three-factor model, whereby *emotional reaction* and *short-term focus* were merged to

form a single affective factor (Model 3). Since Model 3 is a special version (i.e. nested) of Model 2, we computed a $\chi^2_{S\text{-}B}$ difference test comparing Models 2 and 3 in both samples (Mexico: $\Delta\chi^2_{S\text{-}B\,(3)}$= 27.43, p<0.001, Spain: $\Delta\chi^2_{S\text{-}B\,(3)}$=53.93, p<0.001). The $\chi^2_{S\text{-}B}$ difference test, the CFI, NNFI and RMSEA indices suggest that Model 2 offers a better representation of the data in both samples.

We next turned to examine another model, also tested by Oreg (2003). Oreg proposed that together, the four dimensions constitute the higher-order dispositional resistance construct. Model 4 therefore consisted of four first-order factors, loading on a single second-order RTC factor. This model also had a good fit with the data from the two samples, as can be seen in Table 1. That is why, it was necessary to determine which of the two models (i.e. 2 & 4) had the better fit.

The $\chi^2_{S\text{-}B}$ difference test comparing Models 2 and 4 in both samples (Mexico: $\Delta\chi^2_{S\text{-}B\,(1)}$= .89, p=0.64, Spain: $\Delta\chi^2_{S\text{-}B\,(1)}$=7.05, p=0.03), and the small variations of .001 for the RMSEA and .002 for the NNFI and lower than .003 in the CFI in both samples, are not sufficient for preferring one model over the other based on the results of the fit indices. Considering that model 2 is simpler and possibly more stable for replication in other populations, and based on the findings of the English version of the scale (Oreg, 2003), we selected the four-oblique dimension structure as the base model for the invariance and external validity assessments.

Although a number of approaches have been used to evaluate measurement equivalence (cf. Hui and Triandis, 1985; Vandenberg and Lance, 2000), there is general agreement that the multi-group confirmatory factor analytic (CFA) model (Joreskog, 1971) provides the most powerful and versatile technique for testing cross-group measurement

invariance. Based on this method, authors evaluated a series of MG CFA's in order to test each of the seven conditions of invariance proposed by Vandenberg and Lance (2000) with the purpose of demonstrating strict invariance between the two samples. If the condition is demonstrated, then the construct's structure will be cross-validated in both samples, and the two samples could be considered as a single one for assessing the external validity of the questionnaire.

Table 2 presents the results of the series of nested models of the invariance hierarchy, from the least restrictive model, that is, the configural model (Model 1) positing only an equivalent factor structure across samples, to the most restrictive model of the hierarchy (i.e. Model 7), where the means of the latent constructs are constrained to be equal across groups.

All indices suggest that both configural and metric invariance models (i.e. Models 1 & 2) provides adequate fit to the data. The very small change in the CFI between models 1 and 2, and the non significance of the $\Delta\chi^2_{\text{S-B}}$ support the idea that the invariance constraints imposed by Model 2 over Model 1, did not significantly worsen the goodness-of-fit of the least restrictive model. A very similar pattern occurs with the rest of the nested models (Models 3-7). In all cases the variations on each pair of nested models are lower than .01 for the CFI and the RMSEA, and of less than .03 for the NNFI, supporting the inferences of measurement equivalence from the less restrictive model, to the most constrained between the Mexican and Spanish samples.

Since the data for this study were collected from a single source, a series of CFA were performed to identify and partial out any possible method effects. First, a CFA of a model integrated by each of the oblique factors corresponding to the dimensions of the

RTC and PVQ was evaluated. Secondly, a common measure factor was introduced, where each item was an indicator not only of its substantive dimension, but also, of an unmeasured latent variable, that is, the method factor (Podsakoff et al., 2003). The results showed that the fit of the model did not improve appreciably with the addition and specification of method parameters over the RTC and PVQ parameter specification alone (χ^2 (1295) = 2900.542, p = .00, RMSA = .051, NNFI = .903, CFI = .912). Although the difference chi-square statistics is significant, the changes in RMSEA, NNFI and CFI index suggests not important improvement ($\Delta\chi^2$ = 496,511, p = .00, ΔRMSEA = 0.006, ΔNNFI = -.02, ΔCFI = -.02). However, the RTC and PVQ factor loadings were significant even after the method effects were controlled and 16 of the individual path coefficients corresponding to relationships between the indicators and the general method factor were not significant.

The correlations between the four dimension of the RTC construct and the Schwartz's higher-order values (see Table 3), clearly support our hypothesized relationships: the four correlations between conservation and the four dimension of RTC are positive, significant, and with coefficients ranging from .28 to .44, with an average of .33. The pattern concerning the opposite higher-order value (i.e., openness to change), is almost identical, except for the negative sign: the coefficient average is -.33 and the range in the four coefficients goes from -.01 to -.55, making three of the four coefficients statistically significant.

As for the other bipolar dimension of values, the correlation coefficients between self-enhancement and the four dimensions of RTC were lower than .18, making just one of them significant and confirming our predictions. The correlations between self-transcendence and the dimensions of resistance to change were also lower than .15 and all

not significant except in the case of the coefficient between the higher-order value and *routine seeking* (r=.05, p<.001).

Discussion

This study reports a well-supported measure of dispositional resistance to change, which could be used by professionals in the field of vocational behavior in students with Spanish as their mother tongue.

Our efforts to create a decentered Spanish-language version of the instrument allow us to say, that the questionnaire can be applied to subjects of different nationalities, so long as their mother tongue is Spanish.

Our assessment of the convergent validity between the four higher-order values of the Schwartzs´s theory, and the four dimensions of RTC, demonstrated the external validity of the instrument. The results also suggest that method bias may be present, but it does not affect results or conclusions.

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Appendix

Items of the Spanish version of the RTC scale

Routine seeking

1. En general considero a los cambios como algo negativo.

2. Prefiero un día rutinario, sobre uno lleno de acontecimientos inesperados en todo momento.

3. Prefiero hacer las mismas cosas que ya he hecho en el pasado, que intentar hacer cosas nuevas y diferentes.

4. Cuando mi vida toma la forma de una rutina estable, me pongo a buscar la manera de cambiarla. (RP)

5. Prefiero estar aburrido que sorprendido.

Emotional reaction

6. Si se me informara que va a haber un cambio significativo en la forma en que se hacen las cosas en mi escuela, seguramente me estresaría.

7. Cuando me informan sobre un cambio de planes, me pongo un poco tenso(a).

8. Cuando las cosas no van de acuerdo con los planes me estreso.

9. Si uno de mis profesores cambiara los criterios de evaluación, esto seguramente me haría sentir incómodo aún si yo pensara que el cambio no conlleva hacer trabajo extra.

Short-term focus

10. Cambiar planes me parece una verdadera molestia.

11. Con frecuencia me siento un tanto incómodo(a), aún con aquellos cambios que pueden, potencialmente, mejorar mi vida.

12. Cuando alguien me presiona para cambiar algo, tiendo a resistirme aún si creo que el cambio al final me puede beneficiar.

13. Algunas veces me doy cuenta que yo mismo (a) evito cambios que sé que serían buenos para mí.

Cognitive rigidity

14. Con frecuencia cambio de opinión. (RP)

15. Yo no cambio fácilmente de opinión.

16. Una vez que llego a una conclusión, es poco probable que cambie de opinión.

17. Mis opiniones son muy consistentes a lo largo del tiempo.

RP = Reverse-phrased item.

Table 1.- Evaluation of the construct structure validity of the RTC measure through four alternative models.

Model	$\chi^2{}_{S\text{-}B}$	gl	RMSEA	NNFI	CFI
Mexican sample					
Model 1: One-factor model	604.27	119	.127	.676	.716
Model 2: Four oblique factors (RS, ER, STF & CR).	210.72	113	.058	.931	.943
Model 3: Three oblique factors (RS, ER+STF & CR).	238.16	116	.064	.916	.929
Model 4: Four first-order factors (RS, ER, STF & CR) and the second-order factor RTC.	211.62	115	.057	.933	.944
Spanish sample					
Model 1: One-factor model	629.43	119	.123	.720	.758
Model 2: Four oblique factors (RS, ER, STF & CR).	200.02	113	.052	.950	.959
Model 3: Three oblique factors (RS, ER+STF & CR).	253.95	116	.065	.923	.935
Model 4: Four first-order factors (RS, ER, STF & CR) and the second-order factor RTC.	207.07	115	.053	.948	.956

Note: $\chi^2{}_{S\text{-}B}$ = Satorra-Bentler scaled chi-square; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index. RS = *Routine Seeking*, ER = *Emotional Reaction*, STF = Short Term Focus, CR = *Cognitive Rigidity*.

Table 2.- *Summary of Results for the Sequence of Measurement Invariance Tests for the RTC Measure Between Both Samples.*

Model	χ^2_{S-B}	gl	RMSEA	NNFI	CFI	$\Delta\chi^2_{S-B}$	Δgl	p^a	ΔRMSEA	ΔNNFI	ΔCFI
1: Configural Invariance	410.719	226	.055	.942	.952						
2: Metric Invariance	434.874	239	.055	.942	.949						
2 *versus* 1						24.155	13	.03	.00	.00	.00
3: Scalar Invariance	565.467	252	.068	.911	.918						
3 *versus* 2						130.593	13	.00	.01	-.03	-.03
4: Uniqueness Invariance	589.542	269	.067	.915	.916						
4 *versus* 3						24.075	17	.12	.00	.00	.00
5: Invariant factor variances	598.208	273	.067	.915	.915						
5 *versus* 4						8.666	4	.07	.00	.00	.00
6: Invariant factor covariances	602.413	279	.066	.917	.915						
6 *versus* 5						4.205	6	.65	.00	.00	.00
7: Invariant factor means	636.527	283	.066	.911	.907						
7 *versus* 6						34.114	4	.00	.00	-.01	-.01

Note. χ^2_{S-B} = Satorra-Bentler scaled chi-square; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; NNFI = Non Normed Fit Index; CFI = Comparative Fit Index; [a]p value for the $\Delta\chi^2_{S-B/}$ with Δdf test.

Table 3.- *Correlations between the four dimensions of RTC and the four higher-order values.*

RTC dimension / High-order value	1	2	3	4	5	6	7	8
1. Routine seeking	(.68)							
2. Emotional reaction	.483**	(.76)						
3. Short-term focus	.638**	.746**	(.66)					
4. Cognitive rigidity	.263**	.270**	.266**	(.81)				
5. Openness to change	-.554**	-.311**	-.407**	-.060	(.80)			
6. Conservation	.435**	.277**	.323**	.284**	-.133*	(.78)		
7. Self-enhancement	-.082	-.030	-.074	.180**	.481**	.462**	(.84)	
8.Self-transcendence	.148*	.110	.130	-.106	-.188*	.279**	-.120	(.85)

Note. Internal consistency indices of each scale are reported in the diagonal.
* Correlation is significant at the $p < .05$ level.
** Correlation is significant at the $p < .01$ level.

Figure 1.- *The ten value types and the four higher-order values of the Schwartz's theory.*
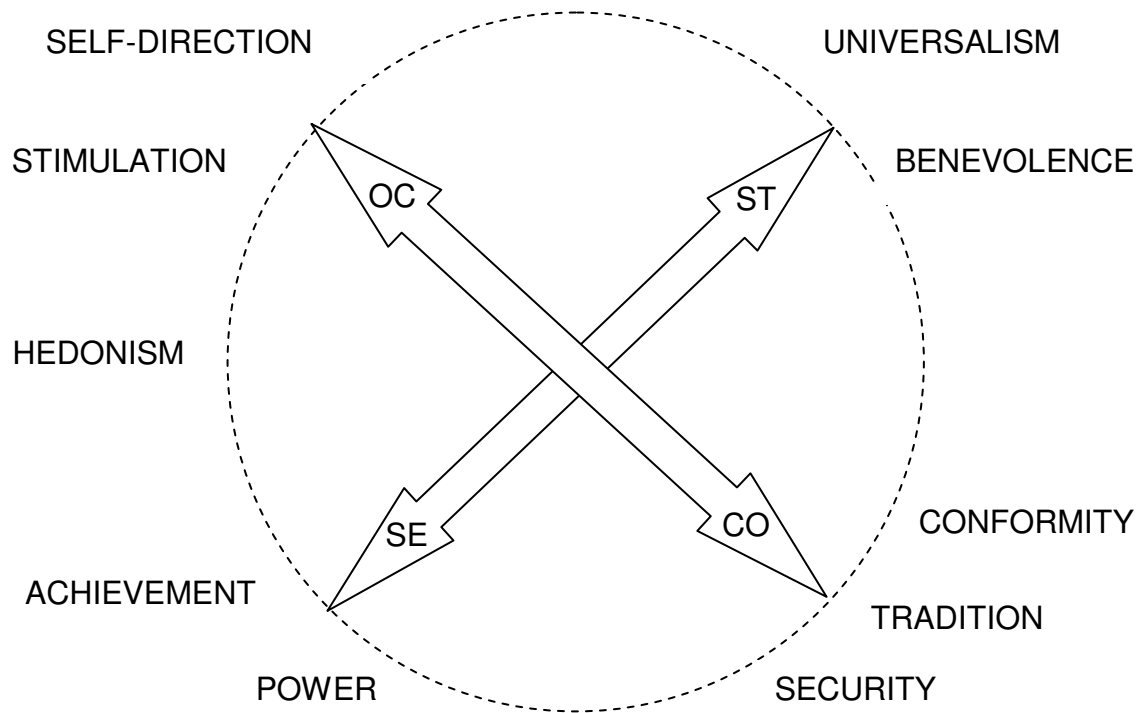
OC = Openness to change, CO = Conservation, SE = Self-enhancement, ST = Self-transcendence.