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The Refined Theory of Values: associations with behavior and evidences of discriminative and predictive validity[1]

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Abstract: The refined theory of 19 basic human values was presented in 2012. Its discriminative validity and utility were associated with attitudes and beliefs, but not with behaviors, introducing an instrument for measuring the 19 values in different countries, but not in Brazil. Two studies, with three independent Brazilian samples, introduced this instrument and investigated the discriminative and predictive validity of the theory by examining the associations of each value with everyday behaviors. A confirmatory multidimensional scaling (MDS) ordered the values in the motivational continuum predicted by the theory. Confirmatory factor analyses support the theory's discriminative and predictive validity. The results suggest that the compatibilities and conflicts that structure the relation between values also organize the behaviors that express them.

Keywords: refined theory of values, discriminative and predictive validity, values and behavior.

Several theorists, as well as sociologists (e.g., Williams, 1968) and anthropologists (Kluckhohn, 1951) already understood values as criteria that people use to evaluate their actions, other people and events. In psychology, Schwartz's theory of basic human values (1992) has been a milestone in the understanding of this phenomenon and is the main object of this study. However, before the discussion of the theory itself, it is important to present a brief history about the study of values.

Values have been studied in many fields of knowledge, each of which examining them under a different, but complementary, point of view. We can state that the study of values is not new. This construct was already debated by pre-socratic philosophers (Rohan, 2000), but only left the scope of philosophy – going to the scope of science – with the efforts of sociologist Talcott Parsons, in his book *The Structure of Social Action*, originally published in 1937 (Parsons, 1937/1949). After him, the anthropologist Clyde Kluckhohn signed at the academy the importance of the study of values (Kluckhohn, 1951), which was shared by other anthropologists, relatively contemporaries to Kluckhohn, as Edward T. Hall and Clifford J. Geertz. However, we can mention Gordon Allport as the forerunner of research on values in psychology. Allport (1961/1969), in his view of culture and values, understand these concepts as complementary, being "in part, a set of inventions that have emerged in many parts of the world to make life more efficient and intelligible for mortals who face the same problems of life: birth, growth, death, pursuit of health, well-being and meaning" (p. 216).

The first effort to measure values in the field of psychology belongs to Rokeach (1973). Rohan (2000) points out that the literature of values was still scarce, and direct references to the topic were not found in the books of social psychology until the pioneering spirit of Rokeach in working with values empirically. Rokeach (1973) says that "the concept of value makes it possible to unify the apparently different interests of all sciences related to human behavior" (p. 21) and, along with the sociologists and anthropologists preceding him, this author emphasizes the central role of this concept in the study of human behavior.

In this historical view, although the interest in values has increased the understanding about the topic, the definition of the concept has not been a very easy task. The difficulties found by theorists in defining this concept is in part due to its recurrent use by laymen and non-social scientists. Historically, values have been defined in two ways: as a noun and as a verb. As a noun, the terminology is very old. Rohan (2000) cites that in the *Compact Oxford English Dictionary* from 1303 the word was already defined in terms of integrity or equivalence of a product. As a verb, the word suggests the act of esteeming the value of an object. In the latter case, the scarcity or fragility of empirical and theoretical studies about the use of values generated some dissatisfaction by the emphasis given to the construction of failed programs of value modifications

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(Rohan, 2000). Another important discussion refers to the form of evaluation of values, i.e., whether from the perspective of the valued entity or from the view of the individual that values. Currently, there is an agreement in the field regarding the study of values from the point of view of the individual who evaluates his environment. Therefore, efforts have been made to measure the valuative priorities of individuals, to understand the motivations underlying the responses issued by them in accordance with the environmental demands (Schwartz, 1992).

In addition to Rokeach's theory (1973) on values, which proposed the Rokeach Values Survey (RVS) for their measurement, others have emerged to better explain the concept. Regarding the study of values in the cultural level of analysis, we can highlight the seminal work of Geert Hofstede (1980), which identified at an early stage of his work four cultural dimensions, or aggregates of values, which gave culture a nature of predictive variable. Whilst Feather (1996) seeks to identify the cognitive structure of values systems, understanding the concept as desirable or undesirable ways to behave. Several other proposals have been made to understand values in the contexts of organizations, of work and of consumption, to name just a few. However, undoubtedly, Schwartz's theory of basic human values (1992) is the one that has gained greater attention from researchers.

Several authors in the field of cross-cultural studies (e.g., Smith, Fischer, Vignoles, & Bond, 2013), or even a simple query to prominent journals of the field, such as the Journal of Cross-Cultural Psychology (JCCP), consider Schwartz's theory of basic human values as a milestone in the study of values in psychology. In 2011, with nearly 20 years of intense scientific production based on this theory, JCCP published a special edition in honor of the author's production[2]. Knafo, Roccas and Sagiv (2011), in identifying the theory of basic human values as a leader in understanding values, strengthen that its author adopted a cross-cultural perspective both in the design of the theory and in its empirical test. Schwartz (1992) considers values as a universal requirement of human existence and, by proposing the theory, transformed the mere study of a list of values in a development of sets of motivational goals, which are able to predict several variables in different cultural groups. In recent years, the theory was used to investigate behaviors such as alcohol and drug use, crime, customer political behavior, participation in sports, among others; to predict attitudinal variables such as job satisfaction, organizational commitment, ethical dilemmas, religiousness, etc.; and to study the relations with personality variables, such as social dominance, authoritarianism and Big-5, to name a few. Thus, we believe that the contributions of this theory are essential for studying values in contemporary times and that the refinement of the theory must be tested in the Brazilian context. First, however, we must discuss the definition of values according to the author.

Schwartz (1992) says that human values can be defined as: (1) beliefs intrinsically related to emotion that, when activated, generate positive and negative feelings; (2) a motivational construct that drives people to act in an appropriate manner; (3) something that transcends specific situations and actions, differing from social attitudes and norms, in addition to guiding people in various social contexts; (4) something that guides the selection and evaluation of actions, policies, people and events and that composes criteria for judgements; (5) something that is ordered according to the relative importance given to the other values, and, thus, forming an ordered system of axiological priorities. Based on this definition, Schwartz (1992) proposed a unifying theory of human values, which predicts a dynamic structure between the motivational categories of values, so that individuals show high priority for compatible types and low priority for conflictive types. Thus, the priority of the motivational types is not randomly settled, but consistently established with the motivational domains. Designed in this way, human values are important constructs in the psychosocial concepts that are considered central to the prediction of attitudes and behaviors, including for the understanding of phenomena that humanities and social sciences are interested in studying. This article describes substantive refinements in the theory of basic values (Schwartz et al., 2012), introducing a new instrument validated for Brazil to measure such values. Using data from three separate samples, we also discuss the question on how these values relate to routine behaviors that, as the theory posits, must be promoted or inhibited by values.

Despite the large number of studies that have adopted the theory of basic values in the last two decades, until now only one study investigated in depth a central assumption of the theory: since the motivational differences between values must be understood as a continuous, the division of space between the motivational types is in fact arbitrary. This division can be overcome by another division "based on a revised theory showing discrete values with greater universal heuristic and predictive power" (Schwartz, 1992, p. 45). In 2012, Schwartz et al. proposed a new division on the continuum of values. The authors identified 19 potential values, conceptually distinct from each other. Multidimensional scaling and confirmatory analyses of the 57 items designed to measure the values confirmed both the distinction between them and their ordering. The 19 values identified were: Self-direction of Thought and Action; Stimulation; Hedonism; Achievement; Power of Domination and Power over Resources; Personal and Social Safety; Tradition; Conformity with Rules and Interpersonal Conformity; Benevolence, Dependence and Care; Commitment; Nature Universalism and Tolerance Universalism; Face; and Humility (for definitions of the values, see Schwartz et al., 2012).

The results from the research of Schwartz et al. (2012) on the instrument developed to measure the values

2 Journal of Cross-Cultural Psychology (March2011), 42(2), 175-177. doi:10.1177/0022022110397036

of the theory, refined in 10 countries, did not include Brazil. The main goal of this research is to examine if the 19 proposed values are distinguished by Brazilian samples and if they are located in the circular motivational order proposed by the refined theory. We introduce a version of the instrument developed by Schwartz et al. (2012) to measure the 19 values, modified and adapted to Brazilian samples. The PVQ-R (Portrait Values Questionnaire – Refined) has its applicability discussed to Brazilian context.

There is still another object of attention in this research. Schwartz et al. (2012) showed the discriminative utility and validity of the refined values by examining their predictive power regarding attitudes and beliefs, but did not relate them with variables of behavioral nature. To better evaluate the refined theory, it is important to determine if each value significantly relates with the behaviors that they are expected to motivate. According to the theory of values, the associations between the values and the behavior must reflect a circular motivational continuum. The values are compatible as the behaviors promote or express goals of a pair of values. When the behaviors have opposite consequences for two values, promoting the goal of one over the other, the values are in conflict. Figure 1 illustrates the ordering of the 19 values in the circular structure of the refined theory.

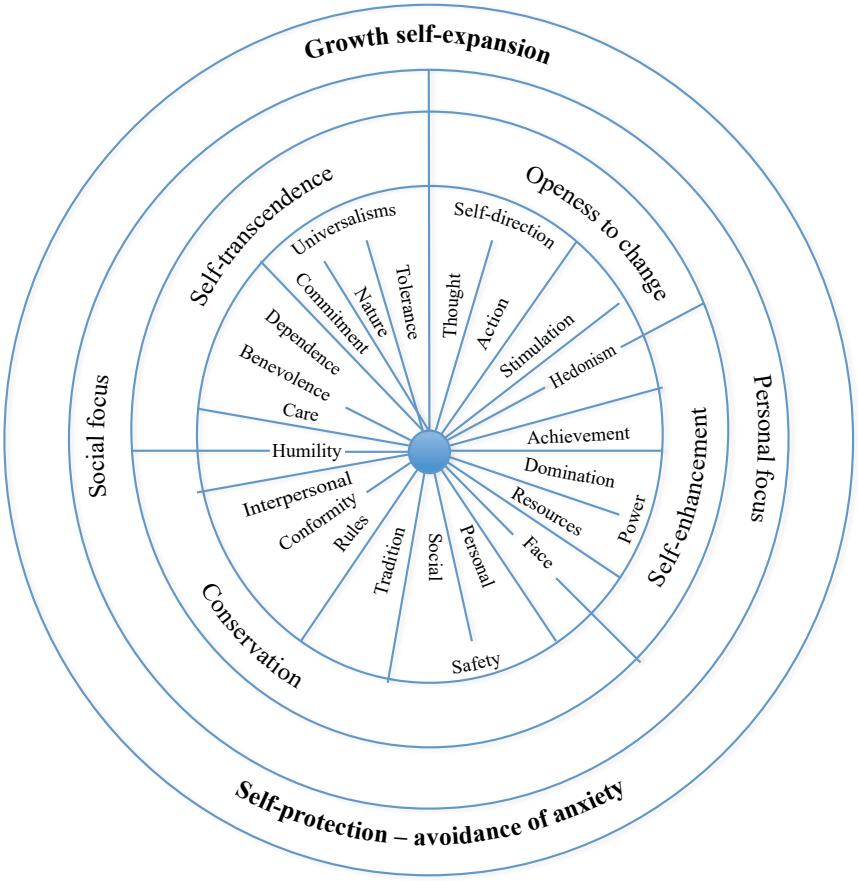

Figure 1. Motivational circle of values according to the refined basic values theory
Note: Adapted from Schwartz et al. (2012)

The outermost circle groups the values in two large groups: those related to dealing with anxiety and self-protection (lower half) and those related to self-development and relatively free of anxiety (upper half). The following circle distinguishes between the values oriented to results for the own person (left) and the values oriented to results for other persons or institutions (right). The next circle indicates the four motivational types of higher-order, already described in the original theory, that capture the two bipolar dimensions of motivational incompatibility between the values. The refined theory shares with the original theory the fact that the 19 more narrowly defined values cover the same motivational continuum proposed by the 10 original values.

Hypotheses

The first hypothesis proposes, in general terms, that the Brazilian data will confirm the refined theory of values. Specifically, it proposes that:

> H1a. It is possible to distinguish between the 19 values with Brazilian data, both in an exploratory way and in a confirmatory way;

H1b. The 19 values will have the same ordering proposed by the theory and represented in Figure 1.

For Bardi and Schwartz (2003), each of the 10 values described in the original theory correlates with routine behaviors that are supposedly motivated by these values. Thus, the associations of the values with the behaviors must be such that:

H2. Each of the 19 values correlates positively with the set of behaviors that it motivates.
H3. Each of the 19 values correlates negatively with the behaviors that are motivated by opposite values.

In fact, each of the hypotheses specifies 19 other hypotheses to be tested, one for each value. According to the theory, people express their values by behaviors, first trying to achieve the goals that are important to them and, second, to reaffirm the core values to their identities (Rokeach, 1973, Schwartz, 2006).

Multiple values can motivate a specific behavior. However, several behaviors express primarily only one value. In this research, we generated, for each of the 19 values of the refined theory, a set of behaviors that would be potentially motivated by one value. Finally, evaluations of frequency of exhibition of the behavior were requested by the respondents, as well as of other people who knew and worked with them for some time. It is worth noting that self-reports of behaviors can be reliable proximal measures of behavior (Gosling, Craik, John, & Robbins, 1998), but reports of other people on the same behavior increase the accuracy of its measurement (Vazire & Mehl, 2008). Besides, the fact of the same person reporting values and behaviors related to them raises the possibility of artificially increasing the relation between values and behavior. The resulting bias can be eliminated (or reduced) with the use of third-party reviews.

Method

Study 1: Participants and procedure

The first study was composed of two samples of 471 (general population[3]) and 573 (college students) participants, which answered to the PVQ-R adapted to Brazil, as well as demographic data. Respectively, the sociodemographic characteristics of the samples are: 51.4% and 65.6% women, with average ages of 35.37 years old (SD = 11.27) and 23.72 years old (SD = 5.76). Most participants from the general population sample had complete higher educational level (83.6%). In the case of the students sample, all were regularly enrolled in a large University in the Midwest region of Brazil and in different courses, and, from the courses that have a substantial percentage of participants registered, we highlight Management courses (18.5%), followed by Psychology (16.8%). In both cases, the recruitment of participants was online, with similar procedures, and the participation was voluntary and anonymous. No incentive for participation was given to respondents. The questionnaire, displayed to the participant on screens, was made up of a first research presentation screen with informed consent and the contact of the coordination of data collection. By agreeing to participate in the research on the first screen, the respondent was then forwarded to the following screens with the questionnaires. To the general population sample, the self-applicable questionnaire was hosted online for 25 days, by the service website Qualtrics, from December 21, 2012 to January 13, 2013. For sample recruitment and dissemination of the research link, we sent e-mails and published the research link on the social networks Twitter and Facebook. In the students sample, the period was from March 23 to April 25, 2013, being used list of e-mails from students, obtained from the Secretariat of academic affairs of a large federal University of the Midwest, after the introduction of the research page, which included informed consent in the first screen and as a condition for the continuation of the answers. A filter has been created in the program (Qualtrics) so that only the complete questionnaires were considered for analysis, and questionnaires with *missing* were discarded.

Instrument

As a measurement of the 19 basic values proposed by the refined theory, the participants filled out a version in Portuguese of the PVQ-R. The questionnaire presents 57 brief descriptions of different people, each one with the goals, aspirations or desires implicitly related to the value in question. The descriptions have variations by sex (with male and female versions of the same item) and represent a review of the questionnaire used by Schwartz et al. (2012). It also contains adaptations to Portuguese, in accordance with the procedure described by Brislin, Lonner and Thorndike (1973). For each description, the participants should indicate their similarity in relation to the person described on a scale of six points: 1 = does not look anything like me until 6 = looks a lot like me. With this, it is suggested that the values implicitly presented in the descriptions of the items allow us to infer the values of the own respondents. For example, the perception of similarity by respondents with the items that show the descriptions "it is important for her to take care of the people she feels close to" or "it is important for her that people do what she says they should do" indicate people who have, respectively, Benevolence – Care and Power – Domain as important values for them. A team of eight bilingual translators performed translations and retranslations of the questionnaire from English to Portuguese, resulting in four rounds of independent translations, with adjustments made by the authors in the items regarding the central ideas and the terms employed.

3 The authors thank Marília Assumpção and Solange Alfinito for collecting and sharing the data.

Exploratory factor analysis

The answers from the first sample, composed of 471 participants, were submitted to exploratory factor analyses aimed at the initial verification of the questionnaire structure regarding the factors proposed by the refined theory of values. To this end, four independent analyses were conducted (one for each type of higher-order), employing the principal axis factoring (PAF) method, with oblimin rotation.

As stated by Laros (2012), in the case of factor analysis, it is possible to carry out a process of cross-validity in an instrument, providing thus larger evidence of its legitimacy in the research, if the factor solution obtained with a first sample is verified by data of a second sample independent from the first. At least, by this procedure it is possible to offer evidence on the question of generalization of the instrument's factorial structure. To the author, it is useful, for the cross-validation, conducting an exploratory factor analysis with one sample and performing a confirmatory analysis with another independent sample, to verify the equivalence of the factorial structure, even because in both cases the factors will result from linear combinations of observed variables. Thus, we opted for a confirmatory factor analysis with the second sample of the study.

Confirmatory factor analysis

The answers of the second sample, comprised of 573 college students, were submitted to confirmatory factor analyses (CFA) to evaluate the degree of distinction of the 19 values and their fit indices. We adopted the procedure proposed by Cieciuch and Schwartz (2012) of carrying out CFAs separately for each of the four types of higher-order of values, namely: Self-transcendence, composed by the values of Universalism, Tolerance, Nature and Commitment, Benevolence, Care and Dependence, Humility; Conservation, composed of Interpersonal Conformity and Conformity with Rules, Tradition, Social and Personal Safety; Self-enhancement, which includes the values of Power over Resources and Power of Domination, Achievement, and Face; and Openness to Change, consisting of Hedonism, Stimulation, and Self-direction of Thought and Action. This procedure allows us to obtain fit indices more suitable for working with a broad range of latent factors such as the one of 19 values (Cieciuch & Davidov, 2012) and it is nothing new in the literature (e.g., Spini, 2003). A CFA model with all the values can insert non-specifying sources. For example, if items have cross-loadings in values that are located on opposite sides of the proposed circle, this does not affect the distinction of adjacent values (Davidov, Schmidt, & Schwartz, 2008). Therefore, in this analysis, the theoretical division between the four types of higher-order of Schwartz (2006) was adopted, as indicated by other values researchers (e.g., Cieciuch & Schwartz, 2012; Knoppen & Saris, 2009). We used the multiple fit indices for the evaluation of the models' covariance structures, i.e., the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). The latter compares the variances and covariances of the sample with the estimates (Arbuckle, 2009), giving clues for the more parsimonious model (Hu & Bentler, 1999). The values of CFI > 0.90 (Bentler, 1990), RMSEA < 0.08 (Browne & Cudeck, 1993) and SRMR < 0.08 (Hu & Bentler, 1999) were considered good fit indicators. Such analyses were made with the AMOS 18.0 program (Arbuckle, 2009). The estimation method used was that of maximum likelihood, which allows one to obtain better results, even with the violation of the assumption of normality (Marôco, 2010; Kline, 2010). The model based on the theory predicts 19 contiguous factors of values, each measured with three items. To achieve identification, the variance of latent factors was set at 1, allowing the loadings to have free estimate. As described earlier, because of a filter created in the data collection program, there was no presence of *missing* in the database.

Multidimensional scaling analysis

The confirmatory and not metric multidimensional scaling (MDS) (Borg & Groenen, 2005), with initial settings based on the theory of Schwartz et al. (2012), was used to verify the relations between the items of the 19 values in the second sample. Only the items maintained after the CFAs were included (based on indices of modification and of the standardized residuals) in the MDS. At the beginning of the analyses, we specified a custom configuration, based on the circular structure predicted by the theory[4]. Ordinal transformations of proximity were used, and the Euclidean distance was the measure of dissimilarity used (by monotonic transformation). The transformation of data was in Z-scores (Bilsky, Janik, & Schwartz, 2011). Because of its number, an MDS that included the items would result in a difficult to see configuration, because even using only the items maintained after the CFAs, the projection would include 56 items. Thus, we decided to carry out the MDS that included the factor scores of the 19 values that resulted from the CFAs. The use of factor scores reduces the impact of biases (e.g., acquiescence) and, at the same time, has no effect on the distances between the data (Borg & Groenen, 2005).

Study 2: Participants and procedure

A sample of 248 military police officers of Federal District answered to the PVQ-R described in Study 1 and a questionnaire on routine behaviors, which mirrored the values presented in the PVQ-R. The respondents formed 124 pairs with coworkers who knew each other and worked

4 The drawing of the matrix for the initial configuration used coordinates for each of the 19 values in increasing angles of 19 degrees (e.g., 19_19_360). Similar results were found when the initial configuration of Torgerson was used.

together for two years or more (mean = 6.67; SD = 8.06). In terms of sociodemographic characteristics, most participants were men (81.8%), with an average age of 37.60 years old (SD = 8.66) and range of 23 to 53 years, and on average 15.82 years of formal education (SD = 4.64).

First, each participant answered his own values questionnaire and then evaluated the frequency of occurrence of routine behaviors of his coworker. After an interval, the participants evaluated the frequency of their own routine behaviors. The questionnaires were administered in pencil and paper format, in groups of 30 officers, upon consent of the participants and of the military police of Federal District. The pairs of officers answered the questionnaires at the same time, but without consulting each other. The study was introduced as a research on familiarity with the coworker. The participation was voluntary, with anonymity assured, with obtention of voluntary consent of participation by respondents. The average duration of the applications was 30 minutes.

Instruments

The PVQ-R, described in Study 1, was used as measurement of the 19 values. The 57 items employed in the previous study were also applied to this sample. In addition to the PVQ-R, we also used two measurements developed for the study.

Measurement of behaviors

Participants answered two questionnaires on routine behaviors. One of them aimed to self-evaluate the frequency of behaviors, while the other was used for evaluation by a coworker. Both questionnaires were composed of sets from three to six specific behaviors that expressed mainly one of the 19 values of the theory. The items were selected after being examined by four judges (two cross-cultural researchers and two officers from the Federal District's military police) regarding their fitness to Brazilian context, possibility of occurrence between police officers and familiarity of writing. As well as for the PVQ-R, a team of eight bilingual translators performed translations and retranslations of the questionnaire from English to Portuguese, resulting in four rounds of independent translations.

Each questionnaire was composed of 85 items (both in the version for self-evaluation and in the peer evaluation). The filling instructions varied between the two versions of the questionnaire (e.g., "Estimate how often you behaved in each of these ways in the last year in relation to the times you had the opportunity to do this" for the questionnaire of own behaviors; and "Estimate how often your partner behaved" for peer evaluation) and in scale of answer, e.g., "0 – I never did that, although I have had at least one opportunity to do it" or "0 – My colleague never did that, although he has had at least one opportunity to do it", respectively. The scales of answer varied from 0 – Never to 4 – Always. The inclusion of the second part of the statement in the alternatives, "although I have had at least one opportunity to do it" is a modification to the procedure originally presented by Bardi and Schwartz (2003), which allowed the respondents to distinguish between having done the behavior and have had an opportunity to do so. Some examples of items with corresponding values are: "Avoiding buying things that could harm the environment" (Universalism – Nature) and "Doing risky things only for the thrill of doing it" (Stimulation).

Measurement of familiarity

At the end of the questionnaire, the respondents informed to what extent they knew their coworker on a scale of 5 points (1 – Not so well; 5 – Very well), in addition to the time they knew the other person, as previously stated. 67.2% of the respondents said knowing the colleague well or very well (mean = 3.95; SD = 1.01). Because of the level of familiarity found, the two evaluations of behavior were included in the study and treated aggregately in the analyses.

Analyses

The answers from the 248 participants were analyzed using CFAs to verify the suitability of the four models of higher-order types to the sample, using the same procedures described in Study 1. This test procedure was used not only for the values questionnaire, but also for the behavior questionnaires. The data have also been subjected to the following analyses:

Multiple regressions

To test the Hypotheses 2 and 3, multiple regressions were used with the behaviors as criterion variables and the values as predictors. Two points deserve attention in these analyses: first, the test of these hypotheses seeks the best behavior estimate. In reality, there is no interest in self or peer evaluations of behaviors related to the values themselves and, therefore, both were aggregated to increase the level of confidence in the reports, obtaining a safer proximal measure of behavior (Vazire & Mehl, 2008). The two sources show unique information and biases. The self-reports include information known only to the respondent, while the peer evaluations present information known of someone else by observation and which are ignored or denied by the first. By aggregating the information, the variance of the behavior in which the two sources agree is obtained, thus increasing the accuracy of the true information. The second point of interest refers to the fact that, in short, the hypotheses test the relations of compatibility and conflict between the 19 values and how they are expressed in the relations of the values with the behaviors. It is necessary to verify if a behavior that expresses the goals of a given value is positively predicted by its respective value, but negatively by opposite values to that of interest. As it

is necessary to define which opposite value would be the best negative predictor of behavior (Schwartz & Butenko, 2014), the types of higher-order opposed to the behavior of interest were included in the regression equation. Finally, all the regressions were performed using the factor scores of variables, which reduces the biases and sources of error of the simple correlations. Factor scores are calculated by the average of the product of the score obtained on a variable *versus* the weights of the factor scores resulting from the CFAs, having been obtained with the MPlus program, based on models resulting from the AMOS 18.0, since AMOS has no functions that allow the calculation of factor scores. Only the items maintained after the CFAs were used (Herrmann & Pfister, 2013).

Results

Study 1

Table 1 presents the results of the exploratory factor analyses for the first study sample. Following the proposal of Cieciuch and Schwartz (2012), four PAFs were carried out, one for each type of higher-order. Therefore, the adequacy of the sample for each of the 4 dimensions was assessed: 1 – Self-transcendence (18 items; KMO = 0.898 and Bartlett's Sphericity test, χ^2 (153) = 3419.364, p < 0.000), 2 – Conservation (15 items; KMO = 0.879 and Bartlett's Sphericity test, χ^2 (105) = 2519.971, p < 0.000), 3 – Self-enhancement (12 items; KMO = 0.851 and Bartlett's Sphericity test, χ^2 (66) = 1920.266, p < 0.000) and 4 – Openness to Change (12 items; KMO = 0.852 and Bartlett's Sphericity test, χ^2 (66) = 1465.144, p < 0.000). The results of the analyses, along the precision index (Cronbach's alpha and Guttman's lambda 2) of the scale, are presented in Table 1. It is worth reminding that the precision indices are results of statistical analyses of the data from a single application of the instrument to the sample and they serve to verify the reliability of it, that is, its property to be consistent, to measure systematically and with fewer errors what is intended to measure, serving as indicators of items that can be removed to increase the precision of the instrument (Pasquali, 2003).

Table 1

Exploratory factor analyses for general population sample (N=471)

Items	*Dimensions*				h^2
	1	2	3	4	
It is very important for them to help their loved ones.	0.72				0.62
It is important for them to be reliable and faithful friends.	0.70				0.62
It is important for them to be humble.	0.66				0.46
It is important for them to worry about all the needs of their loved ones.	0.65				0.46
It is important for them to take care of the people they feel close to.	0.63				0.52
It is important for them that all are treated equally, even people they do not know.	0.62				0.44
It is important for them that all their friends and family can trust them completely.	0.61				0.49
It is important for them to accept people, even when they disagree with them.	0.61				0.43
It is important for them that all the people in the world have equal opportunities in life.	0.60				0.44
It is important for them to listen and understand the people who are different from them.	0.59				0.47
It is important for them to take care of nature.	0.58				0.59
It is important for them to be tolerant of all types of people and groups.	0.57				0.42
It is important for them to protect the weak and vulnerable in society.	0.53				0.32
It is important for them that the people they know have complete confidence in them.	0.52				0.47
It is important for them to protect the environment from destruction or pollution.	0.52				0.62
It is important for them to take part in activities to defend nature.	0.50				0.60
It is important for them never to boast or be arrogant.	0.34				0.22
It is important for them to never seek attention or praise.	0.33				0.21

continues...

Table 1
Continues

Items	*Dimensions*				h^2
	1	2	3	4	
It is important for them to never violate rules or regulations.		0.73			0.56
It is important for them to obey all laws.		0.69			0.55
It is important for them to follow the rules even if nobody is looking.		0.64			0.51
It is important for them to honor the traditional practices of their culture.		0.62			0.50
It is important for them to never make other people angry.		0.62			0.56
It is important for them that there is stability and order in society as a whole.		0.60			0.39
It is important for them to never annoy someone.		0.58			0.56
It is important for them to follow the customs of their family or of a religion.		0.56			0.48
It is important for them to never do anything dangerous.		0.56			0.33
It is important for them that their country is secure from all threats.		0.52			0.36
It is important for them to avoid bothering people.		0.51			0.43
It is important for them to be personally safe.		0.44			0.27
It is very important for them to prevent diseases and protect their health.		0.42			0.27
It is important for them to be rich.			0.75		0.64
It is important for them to have the power to get people to do what they want.			0.74		0.56
It is important for them to have the power that money can bring.			0.70		0.56
It is important for them to be very successful.			0.67		0.48
It is important for them to have expensive things that show their wealth.			0.64		0.48
It is important for them that people recognize what they have achieved.			0.60		0.37
It is important for them to be the ones to tell others what to do.			0.59		0.38
It is important for them never to be humiliated.			0.46		0.38
It is important for them to have ambitions in life.			0.42		0.25
It is important for them to protect their public image.			0.40		0.32
It is important for them that people do what they said they should.			0.36		0.18
It is important for them that no one ever embarrass them.			0.36		0.38
It is important for them to enjoy the pleasures of life.				0.61	0.39
It is important for them to make their own decisions about their lives.				0.60	0.40
It is important for them to be free to choose what to do.				0.60	0.38
It is important for them to have their own original ideas.				0.59	0.34
It is important for them to plan their activities independently.				0.56	0.36
It is important for them to take risks that make life exciting.				0.56	0.36
It is important for them to be always looking for different things to do.				0.54	0.30
It is important for them to have all kinds of new experiences.				0.53	0.37

continues...

Table 1
Continues

Items	*Dimensions*				h^2
	1	2	3	4	
It is important for her to expand her knowledge.				0.51	0.26
It is important for them to take advantage of any opportunity to have fun.				0.47	0.39
It is important for them to have their own understanding of things.				0.46	0.33
It is important for them to be entertained.				0.44	0.31

	Dimensions			
	1	2	3	4
Number of items	18	15	12	12
Eigenvalue	6,64	5,67	4,56	4,22
% of Explained Variance	36,91%	37,80%	38,03%	35,20%
Cronbach's alpha	0,89	0,88	0,84	0,82
Guttman's lambda 2	0,89	0,88	0,85	0,83

With PAF results suggesting the prevalence of the 19 factors structure for the Brazilian version of the PVQ-R, we proceeded to confirmatory analyses of the structure proposed by the theory with the second sample of the study (n = 573). We adopted a strategy of magnifying glass, which analyzes each model for the four types of higher-order separately (Cieciuch & Davidov, 2012; Cieciuch & Schwartz, 2012). Figure 2 shows the resulting models by type of higher-order, the presented coefficients, the loadings of items and the correlations between latent variables obtained. The fit coefficients obtained were: for Self-transcendency, χ^2/d.f. = 2.03, SRMR = 0.0364 with CFI = 0.97 and RMSEA = 0.04 (PClose Values: Lo90-0.032; Hi-0.050, p = 0.951). For Openness to Change, χ^2/d.f. = 3.2, SRMR = 0.0391 with CFI = 0.94 and RMSEA = 0.06 (PClose Values: Lo90-0.050; Hi-0.071, p = 0.056). For Self-enhancement, χ^2/d.f. = 4.5, SRMR = 0.0485 with CFI = 0.93 and RMSEA = 0.07 (PClose Values: Lo90-0.065; Hi-0.086, p = 0.071). Finally, for Conservation, χ^2/d.f. = 2.74, SRMR = 0.0498 with CFI = 0.94 and RMSEA = 0.05 (PClose Values: Lo90-0.046; Hi-0.061, p = 0.228).

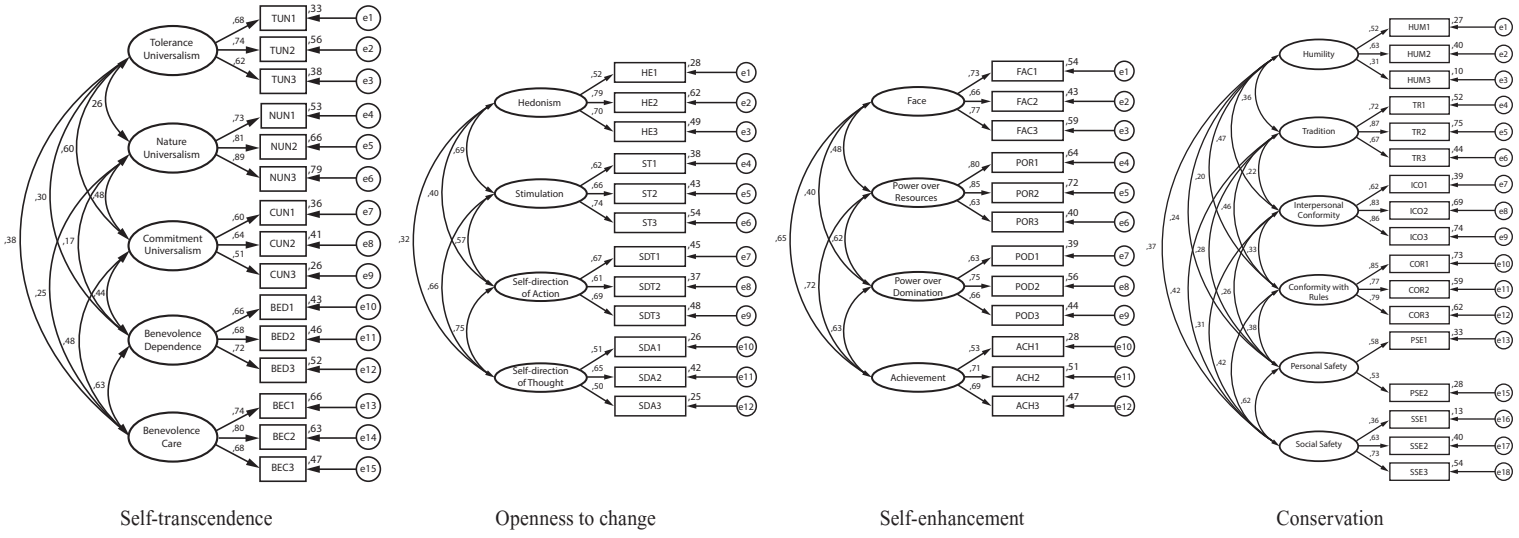

Figure 2. Confirmatory factor analysis of the PVQ-R structure proposed by second order types

As shown in Figure 2, the models remained in full and with all items proposed, with the exception of one value. As the study aims at the validity of the refined theory of 19 values in Brazil and not items in particular, the modification indices and the standardized residues were analyzed. Since the item of Personal Safety (Item 3: PES3)[5] showed standardized residual covariance greater than the limit of |2.58|, according to MacCallum (1986), and its modification indices were inadequate, when saturating, with high values, it was deleted. Only two correlations between latent variables were above 0.70 (Self-promotion and Openness to Change); however, the analyses indicated that it is possible to distinguish between them. The models did not include correlated errors or cross-loadings. Together with those obtained at PAF, these results indicate that it is possible to distinguish between the 19 values of the motivational continuum with the Brazilian version of the PVQ-R. This indicates that some of the original values, more heterogeneous and large, can be divided into more defined subtypes with greater precision, thus confirming the Hypothesis 1a.

Once established that the 19 values can be distinguished, we assessed if they have the same ordering as the motivational continuum proposed by the theory. Figure 3 shows the two-dimensional projection of the MDS for the 19 values. The Stress-1 index was 0.204, with dispersion accounted for (DAF) of 0.953 and Tucker's congruence coefficient (TCC) of 0.975. Because the MDS is an absolute metric model, i.e., the Euclidean distances obtained from the calculated space of representation correspond as closely as possible to the distances observed in the original dissimilarity matrix, there is no p-value associated with the tests (Shye, Elizur, & Hoffman, 1994). These results indicate that the projection represents well the covariance matrix underlying it. That is, they confirm that the resulting ordering represents well the order proposed by the theory

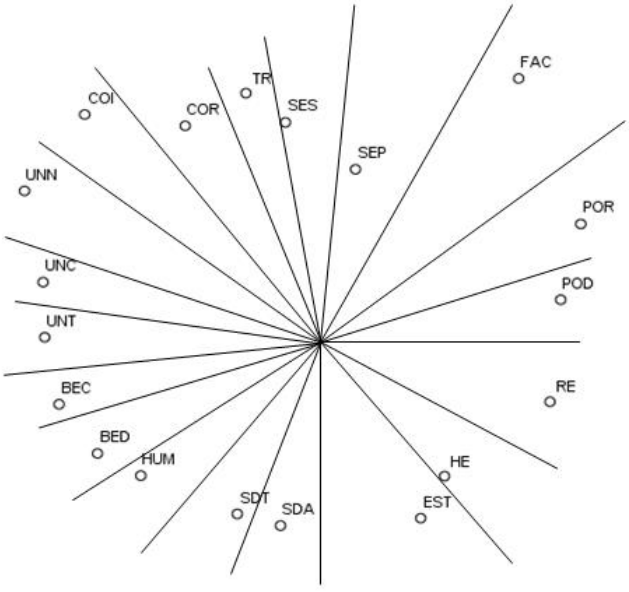

Figure 3. MDS two-dimensional projection for Study 1 (n=573)

Note: TUN=tolerance universalism; NUN= nature universalism; CUN=commitment universalism; BEC=benevolence care; BED= benevolence dependence; HUM= humility; ICO=interpersonal conformity; RCO=rules conformity; TR=tradition; SSE=social safety; PSE=personal safety; POR=power over resources; POD=power of domination; AC= achievement; FAC=face; HE=hedonism; ST=stimulation; SDT=self-direction of thought; SDA= self-direction of action

In general terms, the MDS supports the distribution of values presented in the theory, with two exceptions: Humility, which positioned itself between the subtypes of Benevolence – Dependence and Self-direction of Thought; and Benevolence and Universalism, which were reversed regarding their ordering, when compared to the original distribution proposed. Except for the mentioned values, the MDS results corroborate the Hypothesis 1b.

5 Schwartz et al. (2012) discarded nine items that were restored. All of them were maintained in this CFA. The final version of the PVQ-R in Portuguese for the measurement of the 19 values can be obtained from the first author.

Study 2

Although the results of Study 1 indicated that it is possible to distinguish between the 19 values of the motivational continuum with the Brazilian version of the PVQ-R, we decided to confirm if this distinction would be maintained in the police officers sample, which is a population with specificities in relation to values, according to the literature (Nascimento et al., 2013). By following the procedures described previously, four CFAs were carried out and their results are presented in the first part of Table 2.

Table 2

Confirmatory Factor Analyses: Fit indexes to Values and Behaviors

Model	χ^2	*df*	*CFI*	*RMSEA*	*SRMR*
Values					
1a Initial model for Openness to Change: 12 items, 4 latent factors	295,2	47	,77	,12	,08
1b. Revised model for Openness to Change: 10 items, 4 latent factors	104,8	37	,90	,08	,06
2a. Initial model for Self-enhancement: 12 items, 4 latent factors	243,1	50	,80	,11	,08
2b. Revised model for Self-enhancement: 10 items, 4 latent factors	99,5	35	,90	,08	,05
3a. Initial model for Conservation: 18 items, 6 latent factors	156,1	75	,84	,07	,05
3b. Revised model for Conservation: 13 items, 5 latent factors*	152,0	55	,90	,06	,04
4a. Initial model for Self-transcendence: 15 items, 5 latent factors	159,9	78	,93	,06	,05
4b. Revised model for Self-transcendence: 16 items, 6 latent factors*	189,6	80	,90	,05	,04
Self-assessment of behaviors					
1. Revised model for Openness to Change: 15 items, 4 latent factors	160,8	82	,87	,05	,05
2. Revised model for Self-enhancement: 14 items, 4 latent factors	172,3	70	,88	,07	,05
3. Revised model for Conservation: 19 items, 5 latent factors	326,1	139	,80	,06	,06
4. Revised model for Self-transcendence: 22 items, 6 latent factors	410,5	192	,86	,05	,06
Hetero-evaluation of behaviors					
1. Revised model for Openness to Change: 17 items, 4 latent factors	271,1	107	,82	,07	,06
2. Revised model for Self-enhancement: 15 items, 4 latent factors	236,9	80	,85	,07	,07
3. Revised model for Conservation: 19 items, 5 latent factors	383,4	140	,80	,07	,06
4. Revised model for Self-transcendence: 20 items, 6 latent factors	313,1	154	,90	,06	,06

Note: For all values of $\chi 2$, $p<.001$. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual

*The value "humility" was deleted in the revised model for Conservation and included in the model for Self-transcendence

The first part of the table shows the fit indices of the early models with 57 items and their respective final models. All indices of final models met the fit criteria. Again, the modification indices were examined, leading to the disposal or relocation in higher-order types not previously predicted on eight items. Two correlated errors were included, being them between items 1 and 2 of Achievement, with loading of 0.17 (Self-promotion type) and between items 1 and 3 of Self-direction of Thought, with loading of 0.24 (Openness to Change type). This inclusion, however, did not change the final fit. It is worth noting that for this sample the value Humility adjusted better to the higher-order type Self-transcendence than Conservation, as shown earlier in Figure 2. As proposed by the theory, this value is frontier between the two mentioned types and, for this sample, the recognition of own insignificance (main goal of the value Humility) apparently reflects the conformity with social expectations more than the renunciation of self-interest in favor of others.

Table 2 also shows the fit indices of final models of the instruments of behaviors related to the four higher-order factors, for self and peer evaluation. As expected, in both instruments the models for the behaviors related to the value Humility fit better in Self-transcendence. The analysis of the modification indices for the two instruments indicated the disposal of 15 items for Self-evaluation and 14 for peer evaluation. All indices of final models met the fit criteria. Although the primary objective is not to test the distinction between behaviors, the results indicate that it is possible to distinguish between the 19 behaviors. The closeness of the scores indicates that the self and peer evaluation measures of behavior can be treated aggregately.

We conducted multiple regressions of the factor scores of aggregated behaviors as criterion variables and of the respective values and opposed types of higher-order as predictors. We expected that a behavior that expresses the goals of a particular value would be positively predicted by the respective value (as expressed on Hypothesis 2), but negatively by the higher-order type opposed to the behavior of interest (Hypothesis 3). The results of the 19 regressions are presented in Table 3.

Table 3

Multiple regressions of behaviors (self -and hetero-related factor scores) in the corresponding values (factor scores) and opposite second-order motivational type (average factor scores)

Behaviors	*Values*	β	t	F (2, 241)	R^2
Tolerance Universalism	Value Tolerance Universalism	,31	5,57***	16,55***	,09
	Self-enhancement	-,12	-4,40*		
Nature Universalism	Value Nature Universalism	,26	4,72***	11,33***	,07
	Self-enhancement	-,02	-1,44		
Commitment Universalism	Value Commitment Universalism	,18	4,15**	15,24**	,07
	Self-enhancement	-,01	-1,21		
Dependence Benevolence	Value Dependence Benevolence	,35	16,23***	21,99***	,12
	Self-enhancement	-,09	-2,09*		
Care Benevolence	Value Care Benevolence	,40	16,52***	29,92***	,16
	Self-enhancement	-,08	-3,41*		
Humility	Value Humility	,07	0,75 *n.s.*	2,14 *n.s.*	,03
	ST, HE, AC, POD[1]	-,01	-0.82 *n.s.*		
Face	Value Face	,23	15,59***	17,95***	,10
	Self-transcendence	-,21	-5,99**		
Power over Resources	Value Power over Resources	,33	16,34***	32,16***	,12
	Self-transcendence	-,16	-6,61**		
Power of Domination	Value Power of Domination	,29	5,21***	16,33***	,10
	Self-transcendence	-,20	-4,18***		
Achievement	Value Achievement	,21	6,88***	6,96**	,08
	Self-transcendence	-,12	3,67*		
Hedonism	Value Hedonism	,44	7,15***	27,92***	,15
	Conservation	-,35	-5,76***		
Stimulation	Value Stimulation	,44	7,52***	28,67***	,15
	Conservation	-,17	-3,94**		
Self-direction of Action	Value Self-direction of Action	,10	4,21*	5,65**	,10
	Conservation	-,14	-4,81*		
Self-direction of Thought	Value Self-direction of Thought	,02	2,31	16,62***	,10
	Conservation	-,29	3,50**		
Personal Safety	Value Personal Safety	,11	4,39*	6,98**	,08
	Openness to Change	-,11	-4,48*		
Social Safety	Value Social Safety	,25	4,97***	16,38***	,10
	Openness to Change	-,07	-2,46		
Tradition	Value Tradition	,21	8,94***	11,02***	,10
	Openness to Change	-,05	-2,72		
Conformity with Rules	Value Conformity with Rules	,33	4,81**	27,59***	,15
	Openness to Change	-,07	-3,92*		
Interpersonal Conformity	Value Interpersonal Conformity	,21	6,32**	15,57***	,18
	Openness to Change	-,10	-3,48*		

* $p < .05$ ** $p < .01$ *** $p < .001$

[1]: For Humility, which is in opposition to two different types of second-order values, Stimulation (ST), Hedonism (HE), Achievement (AC) and Power of Domination (POD) were used as the set of opposite values

For 17 of the regressions carried out, the individual contribution of the corresponding value was positive and higher than the contribution of the opposite motivational type, with percentages of explained variances ranging from 7% and 18%. In two regressions (for the subtypes of Self-direction) the sign of the contribution remained, but the weight of the contributions from the opposite types was superior to those of the corresponding values. To the behaviors of Humility, we cannot consider that there was a prediction regarding its respective value, either by the set of values opposed to it (Stimulation, Hedonism, Achievement and Power-Domination). Thus, the Hypotheses 2 and 3 were partially confirmed.

Discussion

Together, the results of the PAF (Study 1) and of the CFAs (Studies 1 and 2) support the distinction of the 19 values in Brazil. In the first verification of the structure of the instrument, all items remained in the exploratory factor analysis. To obtain proper fit indices, only one item with the students sample (Study 1) was removed in the CFAs and eight items in the officers sample (Study 2), against the nine items removed by Schwartz et al. (2012). This research expands the validity of the refined theory of values, demonstrating its resistance to the changes in the measuring instrument. The results also suggest that the instrument is suitable for use with Brazilian samples, representing a breakthrough in the measure used previously.

The ordering of the 19 values in the motivational continuum proposed by the theory was tested with the MDS (Figure 3). In general terms, the order observed corresponds to that proposed in the theory, but the values of Universalism and Benevolence and their respective subtypes are reversed when compared to the proposed structure. This unexpected result was also found by Schwartz et al. (2012). In their sample in Russia, Schwartz and Butenko (2014) also found an unexpected position for Benevolence. Thus, the results found in the Brazilian sample are not exceptional. The items of Benevolence and Universalism refer explicitly to persons with which the respondent has proximity and identification (in-group) and to the commitment to fair treatment, acceptance and harmony with all people and with nature. The conflict between the concern for the well-being of others, close or not, and self-interest, which is the motivation of the values of Self-enhancement, usually produces negative correlations, which make these values be on opposite sides of the MDS projection. However, when Benevolence and Universalism are refined to focus the in-group of the individual and the protection of different people or with less social power, they can be considered compatible with the values of Conservation and, to some extent, of Self-enhancement. A person concerned with the welfare of the in-group can, for example, make use of his self-determination to benefit who are close to him. Whilst a person concerned with the protection of the weakest can conform with rules and formal obligations committed to equal treatment, justice or preservation of nature. The location of Benevolence and Universalism in Figure 3 reflects the fact that these values are significantly correlated to Conservation values, at the same time in which Benevolence is positively related to Universalism values. This same pattern was found when the MDS projections of the European Social Survey were verified (Bilsky, Janik, & Schwartz, 2011), revealing that, in 32% of representative samples of European countries, the items that measured Benevolence and Universalism appeared in the center of the distribution. To make a more specific analysis of this interpretation, we would need to investigate the correlation matrices of the projections of values in samples from different countries.

The regressions provided evidences of the predictive validity of the theory. As expected, most of the reported behavior was positively predicted by the respective value that would motivate it, and negatively by the opposite motivational type. These results also support substantially the discriminative validity of the instrument, in which 17 of 19 values presented an individual contribution higher than the contribution of the opposite motivational type. Bardi and Schwartz (2003) suggest that the values can influence more the behavior when the situational pressures are weak. When regulatory pressures are nonexistent or are not included in the measurement of behavior, as in the questionnaires involved, the individuals have greater chance of reporting their behaviors consistently with the values. However, when under heavy pressure rules, people can present opposite behaviors to their values, to conform to the group. Maybe that is why, in the case of subtypes of Self-direction, behaviors related to the freedom to determine own ideas and actions receive a stronger explanatory contribution (though negative) of the variance related to conservation than the corresponding value itself. Future researches must investigate the group consensus around expected behaviors and the importance of values as potential sources of incongruence between values and behaviors. If the congruence value-behavior is greater when the importance of the value and the frequency of the behavior are smaller, so it will be possible to obtain evidence for the interpretation of regulatory pressures.

It is important to resume the concept of the value of Humility, especially because of the results found in Study 2. Schwartz et al. (2012) propose that Humility is a value that motivates people to be modest and to avoid standing out from the group. In this value, the self is seen as insignificant, promoting self-sacrifice. It strongly opposes power, which, in turn, focuses clearly on an enrichment of the own importance and in obtaining influence and resources for oneself. It is a frontier value with Self-transcendency because, as this type of higher-order, it also ignores self-interest. In the case of the results here found, this value is located in Conservation, since it accepts that legitimate external expectations should have precedence over self-centered desires. In the case of the sample of police officers searched, it is worth noting that it was composed exclusively

by enlisted men, working together for a long time. When joining the Military Police of Federal District, enlisted men already differentiate from the group or social class to which they belong, reaching a higher status in this group. Thus, it is suggested the existence of a cultural pattern in this subgroup of politics, in which the police officer is seen as more privileged than other members of civil society that, even so, are called *paisano*, from Latin *paganus*: one who is unaware of the order or organization. For Nascimento (2010) and Pinto (2000), this view of civilian's inferiority is not only historical, but also prevails in the military police and, thus, may have influenced the answers. The three items of Humility of PVQ-R actively suggest the avoidance of attention, public praise and boasting. These items do not include the notion of recognition that the respondent has, which is the basis to boast or get attention. We recommend a reformulation of the items of Humility for items that best elicit the variance related to this value.

We demonstrated that it is possible to distinguish the 19 values more finely defined in Brazilian samples. The relations between the values of the refined theory and the reported behaviors support the validity of the theory with Brazilian samples, suggesting a shared motivation between the two. It is plausible that causal mechanisms presented in other studies (e.g., Sagiv, Sverdlik, & Schwartz, 2011) reinforce the idea that values influence behaviors, which was not tested here.

A limitation of this research is the exclusive use of self and peer reports of behaviors. Reports of behaviors can be accurate when measuring the frequency of specific behaviors (Gosling et al., 1998), as in the case of behaviors that were explicitly chosen as expressions of values. However, the shared variance of the method can exaggerate the values-behaviors relation (McBroom & Reed, 1992). Such an effect may have been reduced when the self-reports were supplemented by peer reports, since each method has different advantages (Meyer et al., 2001). Either way, not even the exaggerated values-behaviors relations should affect the patterns found, suggesting the discriminative and predictive validity of the refined theory of values.

A Teoria de Valores Refinada: associações com comportamento e evidências de validade discriminante e preditiva

Resumo: A teoria refinada dos 19 valores humanos básicos foi apresentada em 2012. Sua utilidade e validade discriminantes foram demonstradas em associações com atitudes e crenças, mas não comportamentos, apresentando um instrumento para medir os 19 valores em diferentes países, mas não no Brasil. Dois estudos, com três amostras brasileiras independentes, apresentam tal instrumento e investigam a validade discriminante e preditiva da teoria pelo exame das associações de cada valor com comportamentos cotidianos. Um MDS confirmatório ordenou os valores no contínuo motivacional previsto pela teoria. Análises fatoriais confirmatórias dão suporte para a validade discriminante e preditiva da teoria. Os resultados sugerem que as compatibilidades e conflitos que estruturam a relação entre os valores também organizam os comportamentos que os expressam.

Palavras-chave: Teoria de Valores Refinada, validade discriminante e preditiva, valores e comportamento.

La Théorie des Valeurs Raffinées: les associations avec le comportement et les évidences de la validité discriminante et prédictive.

Résumé: La théorie raffinée des 19 valeurs humaines fondamentales a été présentée en 2012. Leur utilité et validité discriminantes ont été démontrées en association avec les attitudes et les croyances, mais pas avec le comportement, et présente un instrument pour mesurer les valeurs dans 19 pays différents, mais pas au Brésil. Deux études avec 3 échantillons brésiliens indépendants présentent tel instrument et enquête la validité discriminante et prédictive de la théorie en examinant les associations de chaque valeur avec des comportements quotidiens. Un MDS confirmatoire a ordonné les valeurs dans le continuum de motivation prévue par la théorie. Des analyses factorielles confirmatoires soutiennent la validité discriminante et prédictive de la théorie. Les résultats suggèrent que les compatibilités et les conflits qui structurent la relation entre les valeurs aussi organisent les comportements qui les expriment.

Mots-clés: Théorie Raffinée des Valeurs, la validité prédictive et discriminante, valeurs et les comportements.

La Teoría de Valores Refinada: relaciones con el comportamiento y la evidencia de la validez discriminante y predictiva

Resumen: Se presentó en 2012 la teoría refinada de los 19 valores humanos básicos. Su utilidad y validez discriminante se demostró en asociación con las actitudes y creencias, excepto el comportamiento, un instrumento para medir los valores en 19 países diferentes, a excepción de Brasil. Dos estudios con tres muestras brasileñas independientes presentan este

instrumento e investigan la validez discriminante y predictiva de la teoría mediante el examen de las asociaciones de cada valor con los comportamientos cotidianos. El escalonamiento multidimensional (MDS) confirmatorio ordenó valores en continuo motivacional predicho por la teoría. Los análisis factoriales confirmatorios proporcionan apoyo a la validez discriminante y predictiva de la teoría. Los resultados sugieren que las compatibilidades y los conflictos que estructuran la relación entre los valores también organizan los comportamientos que las expresan.

Palabras clave: Teoría Refinada de Valores, validez discriminante y predictiva, valores y comportamiento.

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