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Confirmatory Factor Analysis of the Styles of Handling Interpersonal Conflict: First-Order Factor Model and Its Invariance Across Groups

M. Afzalur Rahim and Nace R. Magner
Western Kentucky University

Confirmatory factor analysis of data (from 5 samples, $n = 484$ full-time employed management students; $n = 550$ public administrators; $n = 214$ university administrators; $n = 250$ bank managers and employees in Bangladesh; and $n = 578$ managers and employees) on the 28 items of the Rahim Organizational Conflict Inventory—II were performed with LISREL 7. The results provided support for the convergent and discriminant validities of the subscales measuring the 5 styles of handling interpersonal conflict (integrating, obliging, dominating, avoiding, and compromising) and general support for the invariance of the 5-factor model across referent roles (i.e., superiors, subordinates, and peers), organizational levels (top, middle, lower, and nonmanagement), and 4 of the 5 samples.

One of the central issues in organizational research is the assessment of the construct validity of measures (Bagozzi, Yi, & Phillips, 1991). Researchers have often used classical statistical methods, such as exploratory factor analysis (Harman, 1967; Kerlinger, 1986), and heuristics, such as Campbell and Fiske's (1959) multitrait-multimethod (MTMM) matrix, to assess construct validity. Unfortunately, these methods have serious deficiencies because "they make naive assumptions as to the meaning of concepts, provide limited information as to measurement and method error, and examine only primitive aspects of construct validity" (Bagozzi & Phillips, 1982, p. 459). It has been recently confirmed that confirmatory factor analysis is a powerful method for investigating the construct validity of a measure (Schmitt & Stults, 1986). Confirmatory factor analysis provides an indication of overall fit and precise criteria for assessing convergent and discriminant validity.

The objective of this study was to assess the construct validity of the five subscales of the Rahim Organizational Conflict Inventory—II (ROCI–II; Rahim, 1983), which measures five styles of handling interpersonal conflict—integrating, obliging, dominating, avoiding, and compromising—with superiors, subordinates, and peers. We did this with confirmatory factor analysis of data from a collegiate sample and four organizational samples.

Theory of Conflict Styles

The theoretical works on the styles of handling interpersonal conflict have been presented by several researchers (Blake & Mouton, 1964; Follett, 1926/1940; Psenicka & Rahim, 1989; Rahim, 1983, 1992; Rahim & Bonoma, 1979; Rahim & Psenicka, 1984; Thomas, 1976, 1992). Mary P. Follett (1940) found three main ways of dealing with conflict—domination, compromise, and integration—as well as other secondary ways, such as avoidance and suppression. Blake and Mouton (1964) were the first to present a grid for classifying the modes for handling interpersonal conflicts into five types: forcing, withdrawing, smoothing, compromising, and confrontation. They classified the five modes of handling conflict along two dimensions related to the attitudes of the manager: concern for production and concern for people. Blake and Mouton's scheme was reinterpreted and refined by Thomas (1976). He considered the intentions of a party (cooperativeness and assertiveness) in classifying the modes of handling conflict into five types.

Using a conceptualization similar to that of Blake and Mouton (1964) and Thomas (1976), Rahim (1983) differentiated the styles of handling interpersonal conflict along two basic dimensions: concern for self and concern for others. The first dimension explains the degree (high or low) to which a person attempts to satisfy his or her own concerns. The second dimension explains the degree (high or low) to which a person wants to satisfy the concerns of others. These dimensions portray the motivational orientations of a given individual during conflict (Rubin & Brown, 1975). Studies by Ruble and Thomas

M. Afzalur Rahim, Department of Management, Western Kentucky University; Nace R. Magner, Department of Accounting, Western Kentucky University.

Correspondence concerning this article should be addressed to M. Afzalur Rahim, Department of Management, Western Kentucky University, 1 Big Red Way, Bowling Green, Kentucky 42101.

(1976) and Van de Vliert and Kabanoff (1990) yielded support for these dimensions. Combination of the two dimensions results in five specific styles of handling interpersonal conflict, as shown in Figure 1.

Integrating (IN)

This style involves high concern for self as well as the other party involved in conflict. It is concerned with collaboration between parties (i.e., openness, exchange of information, and examination of differences) to reach a solution acceptable to both parties.

Obliging (OB)

This style involves low concern for self and high concern for the other party involved in conflict. An obliging person attempts to play down the differences and emphasizes commonalities to satisfy the concerns of the other party.

Dominating (DO)

This style involves high concern for self and low concern for the other party involved in conflict. It has been identified with a win–lose orientation or with forcing behavior to win one's position.

Avoiding (AV)

This is associated with low concern for self as well as for the other party involved in conflict. It has been associated with withdrawal, passing-the-buck, sidestepping, or "see no evil, hear no evil, speak no evil" situations.

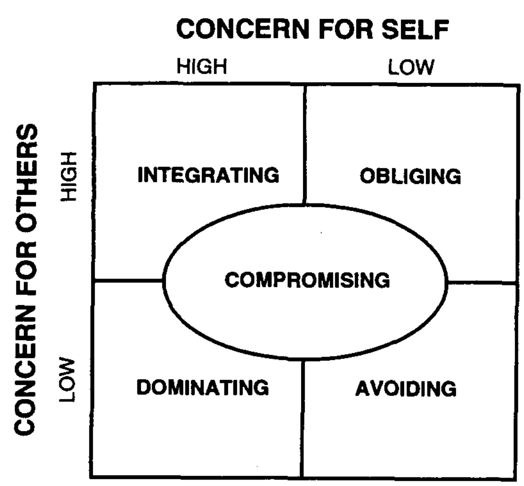

Figure 1. A two-dimensional model of the styles of handling interpersonal conflict.

Compromising (CO)

This style involves moderate concern for self as well as the other party involved in conflict. It is associated with give-and-take or sharing whereby both parties give up something to make a mutually acceptable decision.

The ROCI–II was designed to measure these styles of handling interpersonal conflict. The instrument contains Forms A, B, and C to measure how an organizational member handles her or his conflict with superiors, subordinates, and peers, respectively. The five styles of handling conflict are measured by seven, six, five, six, and four statements, respectively. An organizational member responds to each statement on a 5-point Likert scale (5 = *strongly agree,* 1 = *strongly disagree*). A higher score represents greater use of a conflict style. The items of the instrument are shown in the Appendix.

After reviewing the literature in connection with the development and use of the ROCI–II, Weider-Hatfield (1988) concluded that "although the conflict literature has historically embraced the 'five-style' paradigm, recent evidence indicates that individuals might select among three, not five, distinct conflict styles" (p. 364). Hocker and Wilmot (1991) concluded after a literature review that "conflict styles cluster similarly to conflict tactics—into three types: (1) avoidance, (2) competitive (distributive) and (3) collaborative (integrative)" (p. 119). Others have classified conflict styles into two or four types. The following is a summary of the taxonomies of conflict styles proposed by different scholars:

1. Two styles: cooperation and competition (Deutsch, 1949, 1990; Tjosvold, 1990).
2. Three styles: nonconfrontation, solution-orientation, and control (Putnam & Wilson, 1982).
3. Four styles: yielding, problem solving, inaction, and contending (Pruitt, 1983).
4. Five styles: integrating, obliging, dominating, avoiding, and compromising (Blake & Mouton, 1964; Follett, 1926/1940; Rahim & Bonoma, 1979; Thomas, 1976).

As stated before, the primary objective of this study was to test the construct validity of the five subscales of the ROCI–II as measures of five styles of handling conflict. This was done, in part, by comparing two-, three-, and four-factor models with the five-factor model of conflict styles.

Construct Validity of ROCI–II: Prior Evidence

Exploratory Factor Analysis

The ROCI–II was designed on the basis of repeated feedback from respondents and faculty and an iterative process of exploratory factor analyses of various sets of items. Considerable attention was devoted to the study of published instruments on conflict-handling modes. Initially, an instrument was designed and filled out by master of business administration (MBA) and bachelor of business administration students (n = 60) and managers (n = 38). After the subjects completed the questionnaire, an item-by-item discussion was initiated by M. Afzalur Rahim. Critiques of the instrument were also received from four management professors. The items that were reported to be difficult, ambiguous, or inconsistent were either dropped or revised. A new item was added to compensate for the elimination of an item. Special attempts were made to make the items free from social desirability bias.

Six successive factor analyses were performed to select items for the instrument (ns: students = 184, 351, 133; teachers and principals = 380; hospital management personnel = 185; managers = 1,219). After each of the first five factor analyses, the items that loaded below .40 or loaded on an uninterpretable factor were rephrased. About 105 items were considered for inclusion in the instrument.

The 28 items for the final instrument were selected on the basis of a factor analysis of ratings of 35 items from the national sample of 1,219 managers (Rahim, 1983). In this analysis, the initial factors were derived through a principal-factors solution, and the terminal solution was reached through varimax rotation. The analysis extracted eight factors. The selection of an item was based on the following criteria: factor loading ≥ .40, eigenvalue ≥ 1.00, and the scree test. On the basis of these criteria, the first five factors, comprising a total of 28 items, were selected.

The selected factors supported the dimensionality of the five styles of handling interpersonal conflict. Factors 1 through 5 were named as integrating, avoiding, dominating, obliging, and compromising styles, respectively. Ting-Toomey et al. (1991) reported similar exploratory factor analytic properties of the ROCI–II from their study in five cultures.

A number of studies have supported the criterion validity of the instrument (Keenan, 1984; Lee, 1990; Levy, 1989; Neff, 1986; Persico, 1986; Pilkington, Richardson, & Utley, 1988; Ting-Toomey et al., 1991; Wardlaw, 1988). Rahim (1983) reported that the subscales were not associated with social desirability response bias.

MTMM Matrix

A recent laboratory study assessed the convergent and discriminant validity of the ROCI–II and Thomas and Kilmann (1974) MODE instruments with the MTMM matrix (Ben-Yoav & Banai, 1992). Results indicated moderate convergent and discriminant validity across the data collected on the two instruments. The ROCI–II data suggested greater convergence between self and peer ratings on the Dominating and Avoiding subscales but not on the Integrating, Obliging, and Compromising subscales. As a result of the limitations of the Campbell and Fiske (1959) procedure, discussed earlier, these conclusions are questionable.

Reliability Coefficients

Rahim (1983) found the test–retest reliabilities of the subscales of ROCI–II, computed with data collected from a collegiate sample (n = 119) at 1-week intervals, ranged between .60 and .83 ($p < .0001$). He also found that the internal consistency reliability coefficient for each subscale, as assessed with Cronbach's alpha (Cronbach, 1951), ranged from .72 to .76 and from .65 to .80 for managerial and collegiate samples, respectively.

These test–retest and internal consistency reliability coefficients compare quite favorably with those of existing instruments. Thomas and Kilmann (1978, p. 1141) reported that the ranges of the test–retest reliabilities for the existing instruments on conflict styles were .14–.57 for Blake and Mouton (1964); .41–.66 for Hall (1969); .33–.63 for Lawrence and Lorsch (1967); and .61–.68 for Thomas and Kilmann (1974). They also reported that the ranges of Cronbach's alpha for the Hall, Lawrence–Lorsch, and Thomas–Kilmann instruments were .39–.73, .37–.59, and .43–.71, respectively. The alpha for the Blake–Mouton instrument could not be computed because it contained only one item for measuring each conflict mode.

The psychometric properties of the ROCI–II reported above were based on classical analytical methods, such as exploratory factor analysis. Anderson and Gerbing (1988, p. 412) recommended that one go from exploratory (classical) to confirmatory (contemporary) analysis in an ordered progression. In the present research, we used confirmatory factor analysis to test the construct validity of the five subscales of the ROCI–II. As discussed at the beginning of the article, this is a powerful method of investigating the construct validity of a scale.

Method

Samples

Data for this study were collected from a collegiate sample as well as two convenience samples and two national random samples of organizational members.

Sample 1. Data were collected from the MBA and undergraduate students who had full-time work experience and were registered in M. Afzalur Rahim's management courses from 1983 to 1993. The students filled out 1,112 ROCI–II forms (Form A, n = 484; Form B, n = 305; Form C, n = 323). Mean age and work experience of the respondents were 22.61 (SD = 3.75) and 4.02 (SD = 3.88) years, respectively. About 38% of the respondents were female.

Sample 2. Data on Form A were collected from a national sample of 550 public administrators who were randomly selected from the Dunhill Hugo Lists of over one million administrators (31% response rate). Fifty cases were not used in the present study because of missing data. Mean age and years of work experience of the respondents were 42.98 (SD = 10.71) and 19.99 (SD = 11.03) years, respectively.

Sample 3. Data for this sample came from 214 university administrators in Ohio (Neff, 1986). About an equal number of men and women completed Form A (63% response rate). Because of missing data, 29 cases were not used in this study. About 98% of the respondents had master's or doctorate degrees. Respondents' mean age and years of work experience in higher education were 48.32 (SD = 7.38) and 12.96 (SD = 7.30) years, respectively.

Sample 4. Data for this sample came from 250 managers and employees in three banks in Bangladesh (96% response rate). Respondents were individually interviewed to collect data on Form A. Mean age and work experience of the respondents were 34.01 (SD = 5.51) and 9.92 (SD = 5.74) years, respectively.

Sample 5. Data from this national sample came from 578 managers and employees. For this sample, the items of the ROCI–II, Form A, were modified to require the respondents to predict the conflict-handling styles of his or her superior. These observer data were collected from managers and employees who were randomly selected from the Penton/IPC list of more than 1.5 million members (34% response rate). Respondents' mean age and years of work experience were 40.68 (SD = 12.15) and 15.75 (SD = 7.43) years, respectively.

The ROCI–II was designed to measure the styles of handling conflict in organizations. The five samples for this study provide measures of conflict styles of management students and employees from government, university, business, and even a developing country. These diverse samples of organizational members provide an excellent basis for testing the psychometric properties of the ROCI–II.

Table 1
Goodness-of-Fit Indices for Five Individual Samples Based on Analysis of 28 Observed Variables

Sample and model	n	χ^2	df	GFI	AGFI	RNI
Sample 1						
Form A	484					
Null model		3,281****	378	.56	.52	
One-factor model		2,207****	350	.68	.63	.36
Five-factor model		1,137****	340	.84	.81	.73
Form B	305					
Null model		2,334****	378	.52	.49	
One-factor model		1,507****	350	.68	.63	.41
Five-factor model		665****	340	.86	.84	.83
Form C	323					
Null model		2,966****	378	.47	.43	
One-factor model		1,980****	350	.61	.55	.37
Five-factor model		650****	340	.87	.85	.88
Sample 2	550					
Null model		5,252****	378	.43	.39	
One-factor model		3,472****	350	.55	.48	.36
Five-factor model		877****	340	.89	.87	.89
Sample 3	214					
Null model		2,243****	378	.44	.40	
One-factor model		1,530****	350	.57	.50	.37
Five-factor model		627****	340	.82	.78	.85
Sample 4	250					
Null model		1,951****	378	.52	.48	
One-factor model		1,243****	350	.68	.63	.43
Five-factor model		750****	340	.84	.79	.74
Sample 5	578					
Null model		9,638****	378	.21	.15	
One-factor model		2,972****	350	.64	.58	.72
Five-factor model		1,240****	340	.86	.83	.90

Note. GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; RNI = relative noncentrality index.
**** $p < .001$.

Analysis and Results

Confirmatory Factor Analysis

Confirmatory factor analysis of the 28 final items of the ROCI–II was performed in Samples 1 through 5 with the LISREL 7 computer package (Jöreskog & Sörbom, 1989). In the measurement model, each of the 28 items was allowed to load on only its associated factor (which was identified a priori), and the factors (representing the Integrating, Obliging, Dominating, Avoiding, and Compromising subscales) were allowed to correlate. The covariance matrix for the 28 items was used for performing the analysis, and parameter estimates were made under the maximum-likelihood method.

Table 1 shows indices that were used to assess the extent to which the proposed five-factor model fit the data in Samples 1 through 5. For comparative purposes, fit indices are also presented for a null model (i.e., no relationships between the observed variables) and a one-factor model. Chi-square tests for the five-factor model were significant, suggesting an unsatisfactory fit. However, the chi-square is dependent on sample size such that a large sample is likely to produce a significant result even when there is a reasonably good fit to the data (Bentler & Bonett, 1980). In addition, models with many variables and degrees of freedom will almost always have significant chi-squares.

LISREL provides two other measures of fit that are less affected by sample size—the goodness-of-fit index (GFI) and the adjusted goodness-of-fit index (AGFI). These measures generally range between 0 and 1, with higher values indicating a better fit. The GFIs and AGFIs for the five-factor model generally indicate a moderate fit to the data, ranging from .82 to .89 and .78 to .87, respectively.

Chi-square, GFI, and AGFI are absolute, or stand alone, measures of fit in that they directly assess how well the model accounts for observed covariance (Gerbing & Anderson, 1993). We also applied another measure that assesses the fit of a proposed model relative to that of a null model, the relative noncentrality index (RNI). Evidence indicates that RNI is independent of sample size (Bentler, 1990), and Gerbing and Anderson (1993) recommended RNI as the best available measure of fit for structural equation models. Researchers (e.g., Bentler & Bonett, 1980) have suggested .90 as a minimum value for satisfactory fit when using RNI and similar indices. Applying this .90 criterion, the five-factor model had a satisfactory fit only in Sample 5 (RNI = .90); RNIs in the other samples ranged from .73 to .89.

On whole, these results suggest that the proposed five-factor model has only a moderate fit. Bagozzi and Heatherton (1994, p. 43) noted that it is not uncommon to have unsatisfactory fit when measurement models have more than four or five items per factor and sample sizes are large; in these cases, poor fit may relate to the high levels of random error found in typical items and the many parameters that must be estimated. To address this problem, they proposed a method in which subsets of items within factors are summed to create aggregate variables. Because of the moderate fit of the five-factor model in our initial analysis, we adopted this approach, forming two subsets of items for each factor. The aggregate variables (based on the ROCI–II) were as follows: Integrating 1 (items 1, 4, 5, 12); Integrating 2 (items 22, 23, 28); Obliging 1 (items 2, 10, 11); Obliging 2 (items 13, 19, 24); Dominating 1 (items 8, 9, 18); Dominating 2 (items 21, 25); Avoiding 1 (items 3, 6, 16); Avoiding 2 (items 17, 26, 27); Compromising 1 (items 7, 14); and Compromising 2 (items 15, 20). Bagozzi and Heatherton suggested that it is appropriate to have two aggregate variables per factor when the number of measured items per factor is in the range found in the present study (4–7 items per factor).

Table 2 reports fit indices for the proposed five-factor model based on a maximum likelihood LISREL analysis of the covariance matrix for the 10 aggregate variables in Samples 1 through 5. Fit indices for a null model (i.e., no relationships between the aggregate variables) and a one-factor model are again presented for comparative purposes. Although the chi-squares for the five-factor model were generally significant, Sample 1-Form B and Sample 1-Form C had nonsignificant values on this measure. The GFIs and AGFIs for the five-factor model were generally high, ranging from .93 to .98 and .85 to .96, respectively. The RNIs for the five-factor model exceeded the .90 criterion for satisfactory fit in each sample (range = .91–.99). In our opinion, the analysis using aggregate variables indicates that the five-factor model has a satisfactory fit from a practical standpoint.

Convergent validity. This validity for the five subscales of the ROCI–II was assessed in each sample by examining whether each aggregate variable had a statistically significant factor loading on its specified factor (Anderson & Gerbing, 1988; Netemeyer, Johnston, & Burton, 1990). Table 3 shows factor loadings in Sample 1 for all three forms of the ROCI–II, along with associated t values. All factor loadings were highly significant, with t values ranging from 5.54 to 15.70. Similarly high factor loadings were found in Samples 2 through 5. These results support the convergent validity of the subscales of the ROCI–II.

Table 2
Goodness-of-Fit Indices for Individual Samples Based on Analysis of 10 Aggregate Variables

Sample and model	n	χ^2	df	GFI	AGFI	RNI
Sample 1						
Form A	484					
Null model		964****	45	.68	.61	
One-factor model		584****	35	.80	.68	.40
Five-factor model		84****	25	.97	.93	.94
Form B	305					
Null model		775****	45	.64	.56	
One-factor model		447****	35	.78	.65	.44
Five-factor model		29*	25	.98	.96	.99
Form C	323					
Null model		964****	45	.61	.52	
One-factor model		563****	35	.75	.61	.43
Five-factor model		34**	25	.98	.96	.99
Sample 2	550					
Null model		1,928****	45	.57	.47	
One-factor model		1,216****	35	.68	.50	.37
Five-factor model		77****	25	.97	.94	.97
Sample 3	214					
Null model		653****	45	.61	.52	
One-factor model		412****	35	.72	.56	.38
Five-factor model		77****	25	.93	.85	.91
Sample 4	250					
Null model		541****	45	.65	.58	
One-factor model		260****	35	.81	.71	.55
Five-factor model		50***	25	.96	.92	.95
Sample 5	578					
Null model		3,723****	45	.34	.20	
One-factor model		903****	35	.76	.63	.76
Five-factor model		161****	25	.95	.88	.96

Note. GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; RNI = relative noncentrality index.
* $p > .25$. ** $p > .10$. *** $p < .01$. **** $p < .001$.

Discriminant validity. This validity for the subscales of the ROCI–II was assessed in each sample with two tests suggested by Anderson and Gerbing (1988). First, the correlation between each pair of factors was constrained to 1.0, and the chi-square for the constrained model was compared with the chi-square for the unconstrained model. (The test was performed on one pair of factors at a time.) A significantly lower chi-square for the unconstrained model indicates that the factors are not perfectly correlated, which supports the discriminant validity of the scales. For all 10 pairs of factors in each sample, the chi-square for the unconstrained model was significantly ($p < .05$) less than the chi-square for the constrained model. A complementary test of discriminant validity is to determine whether the confidence interval

Table 3
Factor Loadings and t Ratios for the ROCI–II 10 Aggregate Variables (Sample 1)

Items	ROCI–II forms A (n = 484)	B (n = 305)	C (n = 323)	Range of t ratios
Integrating				
1.	1.53 (.72)	1.36 (.77)	1.43 (.81)	12.60–14.70
2.	1.06 (.65)	1.11 (.78)	1.14 (.82)	12.74–14.87
Obliging				
1.	1.03 (.60)	1.26 (.73)	1.42 (.78)	10.23–11.10
2.	.96 (.64)	1.12 (.74)	1.36 (.78)	10.33–11.53
Dominating				
1.	1.61 (.70)	1.61 (.71)	1.33 (.55)	5.54–9.38
2.	.83 (.58)	1.19 (.83)	1.60 (.95)	6.37–8.71
Avoiding				
1.	1.84 (.81)	1.65 (.70)	2.14 (.88)	8.82–15.70
2.	1.79 (.79)	1.94 (.91)	1.66 (.75)	9.90–15.32
Compromising				
1.	.61 (.51)	.62 (.54)	.64 (.59)	7.89–9.77
2.	.93 (.79)	.87 (.83)	.77 (.75)	9.77–11.95

Note. Standardized loadings based on the correlation matrix are in the parentheses. ROCI–II = Rahim Organizational Conflict Inventory—II.

(two standard errors) around the correlation estimate between two factors includes 1.0. For each pair of factors, the confidence interval did not contain 1.0, providing further support for the discriminant validity of the five subscales of the ROCI–II. Table 4 presents the correlations among the factors in Sample 1 for all three forms of the ROCI–II.

Table 4
Factor Intercorrelation Matrix (Sample 1)

ROCI–II factors	1 r	1 SE	2 r	2 SE	3 r	3 SE	4 r	4 SE	5 r	5 SE
Form A (n = 484)										
1. Integrating	—									
2. Obliging	.51	.07	—							
3. Dominating	.44	.07	.34	.08	—					
4. Avoiding	−.21	.06	.51	.06	.08	.07	—			
5. Compromising	.50	.07	.29	.07	.35	.07	.07	.06	—	
Form B (n = 305)										
1. Integrating	—									
2. Obliging	.40	.07	—							
3. Dominating	.30	.07	.21	.08	—					
4. Avoiding	−.02	.07	.34	.07	.03	.07	—			
5. Compromising	.58	.07	.34	.08	.22	.08	.19	.07	—	
Form C (n = 323)										
1. Integrating	—									
2. Obliging	.18	.07	—							
3. Dominating	.22	.07	.04	.06	—					
4. Avoiding	−.13	.07	.36	.06	−.14	.06	—			
5. Compromising	.75	.06	.30	.08	.24	.08	.08	.08	—	

Note. ROCI–II = Rahim Organizational Conflict Inventory—II.

Table 5
Goodness-of-Fit Indices for One-, Two-, Three-, Four-, and Five-Factor Models (Sample 1, Form A)

Model	χ^2	df	GFI	AGFI	RNI
Null model	964****	45	.68	.61	
One-factor model	584****	35	.80	.68	.40
Two-factor model	403****	34	.85	.76	.60
Three-factor model	266****	32	.90	.82	.75
Four-factor model	148****	29	.94	.89	.87
Five-factor model	84****	25	.97	.93	.94

Note. GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; RNI = relative noncentrality index.
**** $p < .001$.

Table 5 shows the measures of goodness-of-fit for the null and 1 through 5 factor models of conflict styles in Sample 1 (Form A). The grouping of the 10 items for the two- and three-factor models were created as follows. The items of the (a) Integrating, Obliging, and Compromising subscales and (b) Dominating and Avoiding subscales of the ROCI–II were used to create the Cooperative and Competitive subscales of the two-factor model (Deutsch, 1990), respectively. The items of the (a) Dominating, (b) Obliging and Avoiding, and (c) Integrating and Compromising subscales were used to create the Confrontation, Nonconfrontation, and Solution-Orientation subscales of the three-factor model (Putnam & Wilson, 1982), respectively. For the four-factor model (Pruitt, 1983), the items constituting the integrating and compromising styles in the five-factor model were grouped together, whereas the remaining three factors comprised the same items as in the five-factor model.

The GFIs, AGFIs, and RNIs ranged from .68 to .97, .61 to .93, and .40 to .94, respectively. Each of the goodness-of-fit indices suggests that the five-factor model has a better fit with the data than models of two to four factors, and we therefore did not explore those models further.

Factor Invariance

Three analyses were conducted with LISREL to examine the invariance of the five-factor model for the ROCI–II across different groups. The first multigroup analysis was performed in Sample 1 to test the invariance of the model across Forms A, B, and C; Samples 2 through 5 were excluded from this analysis because they provided data on Form A only. The second and third multigroup analyses were performed with Samples 1 through 5 and involved data on Form A. These latter two analyses tested the invariance of the five-factor model across top, middle, lower, and nonmanagement organizational levels and across Samples 1 through 5, respectively.

For each multigroup analysis, a covariance matrix for the 10 aggregate variables was computed for each group. Then the following models were estimated with LISREL and compared sequentially on the basis of fit (Jöreskog, 1971): (a) Model 1, the pattern of factor loadings was held invariant across groups; (b) Model 2, the pattern of factor loadings and the factor loadings were held invariant across groups; (c) Model 3, the pattern of factor loadings, the factor loadings, and the errors were held invariant across groups; and (d) Model 4, the pattern of factor loadings, the factor loadings, the errors, and the variances/covariances were held invariant across groups. For each model, the covariance matrices for all groups were analyzed simultaneously, with one loading for each factor fixed at 1.0 so that the factors were on a common scale.

When estimating an invariance model, LISREL provides a GFI for each group, as well as a chi-square measure of the overall fit of the model for all groups. In addition, we computed an RNI for each invariance model on the basis of a null model in which there are no relationships between the aggregate variables and the variances of the aggregate variables are not held equal across groups.

Table 6 shows the results of the multigroup analysis across the forms of the ROCI–II. Although the chi-square of each model was significant, the other indices provided evidence that all four models had a good fit from a practical standpoint: the RNI for each model was .91 or greater, and each GFI was .93 or greater.

As a test of the hypothesis that the factor loadings are equal across forms of the ROCI–II, the chi-square of Model 2 was compared with the chi-square of Model 1, and the difference was found to be nonsignificant, meaning that the hypothesis of equal factor loadings cannot be rejected on a statistical basis. Furthermore, the RNI of Model 2 was no different than that of Model 1, indicating the models had virtually an identical fit from a practical standpoint. The difference in chi-square between Model 3 and Model 2 was significant, meaning that the hypothesis of equal errors across forms must be rejected on a statistical basis. However, the difference in RNI between the models (.04) seems relatively small and suggests that the equality of errors can be accepted from a practical standpoint. The hypothesis of equal variances/covariances across forms must also be rejected from a statistical standpoint, as the chi-square of Model 4 was significantly different from that of Model 3. Again, however, the difference in RNI between the models (.02) is small, providing practical support for the equality of variances/covariances. On whole, we believe the results provide strong support for the invariance of the five-factor model of the ROCI–II across Forms A, B, and C with respect to factor pattern and factor loadings, and reasonable support for invariance with respect to errors and variances/covariances.

Table 6
Invariance Analysis Across Forms of ROCI–II

Model and group	GFI	χ^2	*df*	RNI
Model 1				
Equal factor pattern		147****	75	.97
Form A	.97			
Form B	.98			
Form C	.98			
Model 2[a]				
Equal factor pattern and loadings		159****	85	.97
Form A	.97			
Form B	.98			
Form C	.98			
Model 3[b]				
Equal factor pattern, loadings, and errors		279****	105	.93
Form A	.94			
Form B	.97			
Form C	.95			
Model 4[c]				
Equal factor pattern, loadings, errors, and variances/covariances		362****	135	.91
Form A	.93			
Form B	.96			
Form C	.93			

Note. Form A, $n = 484$; Form B, $n = 305$; Form C, $n = 323$. ROCI–II = Rahim Organizational Conflict Inventory—II; GFI = goodness-of-fit index; RNI = relative noncentrality index.
[a] Model 2 – Model 1: $\chi^2_d(10) = 12$ ($p > .25$), $RNI_d = .00$.
[b] Model 3 – Model 2: $\chi^2_d(20) = 120$ ($p < .001$), $RNI_d = .04$.
[c] Model 4 – Model 3: $\chi^2_d(30) = 83$ ($p < .001$), $RNI_d = .02$.
**** $p < .001$.

Respondents in Samples 1 through 5 who reported their organizational level were then assigned to groups of top management, middle management, lower management, and nonmanagement, and an analysis was conducted to assess the invariance of the five-factor model of the ROCI–II across these four groups. Results for this analysis are presented in Table 7. Notwithstanding the significant chi-square for each model, each RNI was .95 or greater, and each GFI was .88 or greater, suggesting that all four models had a satisfactory fit from a practical standpoint.

The difference in chi-square between Model 2 and Model 1 was nonsignificant, indicating that the hypothesis of equal factor loadings across organizational levels cannot be rejected on a statistical basis. In addition, the RNI of Model 2 was no different than that of Model 1, providing practical support for the equality of factor loadings. The hypothesis of equal errors across organizational levels must be rejected statistically, as the difference in chi-square between Model 3 and Model 2

Table 7
Invariance Analysis Across Organizational Levels (Form A of ROCI-II)

Model and group	GFI	χ^2	*df*	RNI
Model 1				
Equal factor pattern		345****	100	.97
Top-level	.94			
Middle-level	.96			
Lower-level	.97			
Nonmanagement	.95			
Model 2[a]				
Equal factor pattern and loadings		365****	115	.96
Top-level	.93			
Middle-level	.96			
Lower-level	.97			
Nonmanagement	.95			
Model 3[b]				
Equal factor pattern, loadings, and errors		435****	145	.96
Top-level	.91			
Middle-level	.96			
Lower-level	.97			
Nonmanagement	.94			
Model 4[c]				
Equal factor pattern, loadings, errors, and variances/covariances		529****	190	.95
Top-level	.88			
Middle-level	.95			
Lower-level	.95			
Nonmanagement	.94			

Note. *N*s: top-level = 162, middle-level = 556, lower-level = 515, nonmanagement = 439. ROCI-II = Rahim Organizational Conflict Inventory—II; GFI = goodness-of-fit index; RNI = relative noncentrality index.
[a] Model 2 − Model 1: $\chi^2_d(15) = 20$ ($p > .15$), $RNI_d = .01$.
[b] Model 3 − Model 2: $\chi^2_d(30) = 70$ ($p < .001$), $RNI_d = .00$.
[c] Model 4 − Model 3: $\chi^2_d(45) = 94$ ($p < .001$), $RNI_d = .01$.
**** $p < .001$.

was significant. However, there was no difference in RNI between the models, suggesting that the equality of errors can be accepted from a practical standpoint. Because the chi-square of Model 4 was significantly different from that of Model 3, the hypothesis of equal variances/covariances across organizational levels must also be rejected on a statistical basis. Nevertheless, the small difference in RNI between the models (.01) provides practical support for the equality of variances/covariances. In our opinion, the results provide strong support for the invariance of the five-factor model of the ROCI–II across organizational levels with respect to factor pattern and factor loadings, and reasonable support for invariance with respect to errors and variances/covariances.

The last multigroup analysis assessed the invariance of the five-factor model of the ROCI–II across Samples 1 through 5. Results for this analysis are presented in Table 8. Although each model had a significant chi-square, Model 1 and Model 2 displayed satisfactory fit from a practical standpoint as their RNIs were .95 or greater and their GFIs were .93 or greater. Model 3 had an RNI of .90, indicating adequate fit along that criterion; however, the GFI for Sample 4 in Model 3 was only .83 (GFIs for the other 4 samples ranged from .90–.94). Model 4 had an unsatisfactory fit, with an RNI of .78 and GFIs ranging from .77 to .89.

The difference in chi-square between Model 2 and Model 1 was significant, indicating that the hypothesis of equal factor loadings across the samples must be rejected on a statistical basis. Nevertheless, the small difference in RNI between the models (.01) provides practical support for the equality of factor loadings. The difference in chi-square between Model 3 and Model 2 was also significant, indicating that the hypothesis of equal errors across the samples must be rejected. Although the difference in RNI between Model 3 and Model 2 (.05) seems relatively

Table 8
Invariance Analysis Across Five Samples

Model and group	GFI	χ^2	*df*	RNI
Model 1				
Equal factor pattern		449****	125	.96
Sample 1	.97			
Sample 2	.97			
Sample 3	.93			
Sample 4	.96			
Sample 5	.95			
Model 2[a]				
Equal factor pattern and loadings		496****	145	.95
Sample 1	.96			
Sample 2	.96			
Sample 3	.93			
Sample 4	.96			
Sample 5	.94			
Model 3[b]				
Equal factor pattern, loadings, and errors		923****	185	.90
Sample 1	.94			
Sample 2	.94			
Sample 3	.90			
Sample 4	.83			
Sample 5	.93			
Model 4[c]				
Equal factor pattern, loadings, errors, and variances/covariances		1,930****	245	.78
Sample 1	.88			
Sample 2	.89			
Sample 3	.85			
Sample 4	.80			
Sample 5	.77			

Note. Form A of ROCI-II. *n*s: Sample 1 = 484, Sample 2 = 550, Sample 3 = 214, Sample 4 = 250, Sample 5 = 578. GFI = goodness-of-fit index; RNI = relative noncentrality index.
[a] Model 2 − Model 1: $\chi^2_d(20) = 47$ ($p < .001$), $RNI_d = .01$.
[b] Model 3 − Model 2: $\chi^2_d(40) = 427$ ($p < .001$), $RNI_d = .05$.
[c] Model 4 − Model 3: $\chi^2_d(60) = 1{,}007$ ($p < .001$), $RNI_d = .12$.
**** $p < .001$.

small, the decrease in GFI for Sample 4 (.96 − .83 = .13) suggests that the errors in that sample may differ from those of the other four samples. The difference in chi-square between Model 4 and Model 3 was significant, leading to rejection of the hypothesis of equal variances/covariances across the samples. The large difference in RNI between the models (.12) provides further evidence against accepting the equality of variances/covariances. In our opinion, the results provide strong support for the invariance of the five-factor model of the ROCI–II across Samples 1 through 5 with respect to factor pattern, reasonable support for invariance with respect to factor loadings, moderate support for invariance with respect to errors, and no support for invariance with respect to variances/covariances.

We carried further the analysis reported in Table 8. As reported earlier, the factor loadings were not invariant across the five samples, but the chi-square difference test indicates only that one or more loadings between two or more samples differ. We decided to explore whether invariance of loadings might result for four of the samples, or at least three. We performed an invariance test on Samples 1 through 4. These samples contained data from actors, but Sample 5 had data from observers. The chi-square of Model 2 was compared with the chi-square of Model 1, and the difference was nonsignificant, $\chi^2_d(15) = 21, p > .10$, meaning that the hypothesis of equal factor loadings cannot be rejected on a statistical basis. Furthermore, the RNI of Model 2 was no different than that of Model 1 ($RNI_d = 0$), indicating the models had virtually an identical fit from a practical standpoint. This provides stronger evidence of factor invariance for the inventory.

Discussion

The objective of this study was to investigate the construct validity of the five ROCI–II subscales and their factor invariance across groups. Results from the confirmatory factor analysis provided evidence of both the convergent and discriminant validities of the subscales in diverse samples. Evidence of these validities together with the evidence reported in other field and experimental studies (Lee, 1990; Levy, 1989; Psenicka & Rahim, 1989; Ting-Toomey et al., 1991; Wardlaw, 1988) provide support for the construct validity of the instrument. Results also provided general support for factor invariance across the three forms (which measure how an organizational member handles his or her conflict with superiors, subordinates, and peers); across top, middle, lower, and nonmanagement organizational levels; and across four of the five diverse samples.

In future studies, models developed in the present study should be tested with data from other samples. This will provide further support for the construct validity of the subscales. In addition, data collected in previous studies may be reanalyzed to investigate construct validity of the subscales. In this study, we tested a measurement model for the ROCI–II, but to obtain further evidence of construct validity, these variables should be examined in the context of structural models involving other variables that have been found as antecedents or consequences of conflict styles.

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(Appendix follows on next page)

Appendix

Items of the Rahim Organizational Conflict Inventory—II

1. I try to investigate an issue with my supervisor to find a solution acceptable to us.
2. I generally try to satisfy the needs of my supervisor.
3. I attempt to avoid being "put on the spot" and try to keep my conflict with my supervisor to myself.
4. I try to integrate my ideas with those of my supervisor to come up with a decision jointly.
5. I try to work with my supervisor to find solutions to a problem which satisfy our expectations.
6. I usually avoid open discussion of my differences with my supervisor.
7. I try to find a middle course to resolve an impasse.
8. I use my influence to get my ideas accepted.
9. I use my authority to make a decision in my favor.
10. I usually accommodate the wishes of my supervisor.
11. I give in to the wishes of my supervisor.
12. I exchange accurate information with my supervisor to solve a problem together.
13. I usually allow concessions to my supervisor.
14. I usually propose a middle ground for breaking deadlocks.
15. I negotiate with my supervisor so that a compromise can be reached.
16. I try to stay away from disagreement with my supervisor.
17. I avoid an encounter with my supervisor.
18. I use my expertise to make a decision in my favor.
19. I often go along with the suggestions of my supervisor.
20. I use "give and take" so that a compromise can be made.
21. I am generally firm in pursuing my side of the issue.
22. I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.
23. I collaborate with my supervisor to come up with decisions acceptable to us.
24. I try to satisfy the expectations of my supervisor.
25. I sometimes use my power to win a competitive situation.
26. I try to keep my disagreement with my supervisor to myself in order to avoid hard feelings.
27. I try to avoid unpleasant exchanges with my supervisor.
28. I try to work with my supervisor for a proper understanding of a problem.

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