CONFIRMATORY FACTOR ANALYSIS OF ROCI-III

S. Khalid, N. Amjad, I. Fatima, A. Arshad
Institute of Applied Psychology,
University of the Punjab, Lahore

ABSTRACT

The present study was designed to confirm the factor structure of Rahim Organizational Conflict Inventory-ROCI-III, (Rahim, 2009).Participants were managers and executive managers (N=300) of top and middle management from different public, private and multinational banking sector organizations of Karachi, Lahore and Islamabad, having one year working experience in current organization, within the age range of 30-60 years with equal representation of gender. Confirmatory Factor Analysis on the 24 items of Rahim Organizational Conflict Inventory – III was performed with AMOS using Structure Equation Modeling. The results provided support for the four-factor structure of the ROCI-III inventory including; Substantive, Affective, Masquerading and Transforming conflicts.

Keywords: Affective, Masquerading, ROCI-III, Substantive, Transforming.

1) INTRODUCTION

One of the core issues in organizational researches is to understand the nature of organizational conflicts, therefore much of the literature is devoted to the theoretical perspectives explaining and providing ways for handling the causes and consequences associated with the organizational conflicts (Blake & Mouton, 1964; Psenicka & Rahim, 1989; Rahim, 1992; Rahim & Bonoma, 1979; Thomas, 1992).Jones and Pfeiffer (1973) defined organizational conflict as a disposition of differences and discord where the interests and values or beliefs of two person or groups clash with each other in work setups. Conflict is such an issue that prevails at all levels of human interactions personal, professional, family, and social relationships.

Organizational conflict can be examined in terms of personal and group inclination, such as interpersonal, intrapersonal, intergroup and inter-organizational conflict (Rahim, 2001). As the focus of this article is the

interpersonal organizational conflict which refers to as the ways in which people communicate with each other in terms of affiliation, agreements or difference of opinion (Rahim, 2001). It is thus useful that the researchers are able to develop devices for measuring such phenomena. Previously, Rahim Organizational Conflict Inventory–II (ROCI–II), (1998) was developed that measures Integrating, Obliging, Dominating, Avoiding, and Compromising interpersonal conflict handling styles. Then, Rahim Organizational Conflict Inventory–III (ROCI–III), (2009) was developed that assesses the four types of the interpersonal organizational conflict namely, Substantive, Affective, Masquerading and Transforming conflicts.

1.1) Theoretical framework

ROCI-III is based on the theory extended by Rahim (2002) that was illustrated in his famous contribution "Towards a Theory of managing Organizational Conflict" illustrates previous theorists traditional classification of organizational conflict into two types; One consisting of disagreements about the task (Substantive conflict) and other consisting of socio-emotional or interpersonal disputes (Affective conflict) with the incorporation of the two other types such as Masquerading and Transforming conflict. While the prior investigations provide important clues about the nature of conflict, considerably more investigations were conducted before scholars and practitioners have a solid grasp of the phenomenon. There are several reasons for these two additional kinds of conflict to exist. First studies of conflict have often found high correlations between task and emotional conflicts. Second, previous writings have hinted at the notion that these other dimensions exist (Rahim, 2011). Here follows is the brief description of the extended version of the classification.

1.1.1) Substantive Conflict

It refers to the conflict that originates when there is the difference in opinion regarding task, policies, procedures, and other business-related issues (Rahim, 2002). Individuals engaging in this type of conflict evaluate opinions and ideas on the basis of evidence, logic, and critical and innovative thinking. Moreover, Jehn (1997) defined this type of conflict as group member's discrepancies, notions and attitudes regarding the

performed task. It is further labeled as task conflict, cognitive conflict and issue conflict.

1.1.2) Affective Conflict

Pelled, Eisenhardt and Xin (1999) characterized this as a condition where group member's anger, frustration and negative feelings that were associated with personal attacks and criticisms that lead to hostility, distrust, and cynicism causing interpersonal clashes. Pelled, Eisenhardt and Xin (1999) labeled this type of conflict as psychological, relational, emotional, and interpersonal conflict.

1.1.3) Masquerading Conflict

Pelled, Eisenhardt and Xin (1999) suggested that individual develops a hostile attitude by showing useless criticism on the task related thoughts of other members. This type of conflict is emotional in nature but superficially dependent on task. In this type of conflict group members criticize each other's ideas related to performance on a specific task because they don't get along on a personal level with each other.

1.1.4) Transforming Conflict

When individuals start attacking each other personally and disagreements on business issues drift to emotional conflicts (Rahim, 2011) then this type of conflict is categorized into transforming conflict and this has been labeled by Gainous (2008) as cognitive–affective conflict.
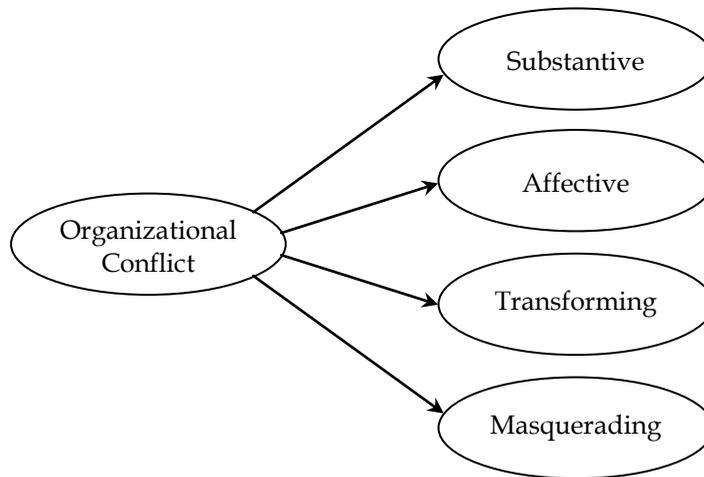
Figure 1: Theoretical Framework

The above mentioned classification of conflict provides the basic framework for the development of Rahim Organizational Conflict Inventory—III (ROCI-III; Rahim, 2009) for measuring the types of interpersonal conflicts. The psychometric assessment of this tool suggested that this is a reliable and valid measure for assessing the specific type of conflict that the individual is going through in an organization but currently no single study had confirmed the factor structure of this measure. Therefore, the current research aimed at confirming the factor structure of Rahim Organizational Conflict Inventory—III (ROCI-III; Rahim, 2009) by performing Confirmatory Factor Analysis (CFA) with Structural Equation Modeling using AMOS on the 4 factor structure of the questionnaire having 24 items.

The basic purpose for conducting CFA but not Exploratory Factor Analysis(EFA)is that former approach as suggested by Harrington (2009) is used by the researchers to test a proposed theory or model and it's assumptions are based on priori theory suggesting some specific number of factors that is contrary to the later approach. As the theory of Rahim (2002) suggested a 4 factor model of the measure so CFA would be recommended over EFA for placing substantively meaningful constraints on the factor model as evident by the theory.

2) RESEARCH METHOD

2.1) Sample

Data for this study were collected with the help of purposive sampling technique from different public, private and multinational banking sector organizations of Karachi, Lahore and Islamabad. From each banking sector organization, managers and executive managers (N=300) of top and middle management with 1-10 years of working experience in current organization. The sample was within the age ranges of 30-40, 41-50. 51-60with 169, 95 and 36 participants respectively including both gender (Men=253, Women=47). A minimum education of the participants was 16 years.

2.2) Assessment Measure

The Rahim Organizational Conflict Inventory–III (ROCI–III, 2009) was used to measure the types of conflict in organizational settings. The major indicators of this scale include the broader domain categories of major types of conflict, i.e. substantive, affective, transforming, and masquerading. It's a new latest developed instrument of an expert author and he has confidence that it can be used without adaptation in multiple and diverse cultures (Rahim, 2009). The Inventory contains 7 items of affective conflict (example of affective conflict item is *Members attack each other personally),* 7 items of substantive conflict (example of substantive conflict items is *Members disagree on the policies and principles guiding tasks),*5 items of transforming conflict(example of transforming conflict item is *Difference of opinion on the group's functions drifts to personal conflict*) and 5 items of masquerading conflict (example of masquerading conflict item is *Members who don't get along on a personal level, disguise their relationship issues as criticisms of each other's ideas on business issues).*The Cronbach alpha of the given inventory according to this research for all the four conflict types was estimated. On Affective Conflict items it was found to be .76, on Substantive Conflict items was .71, on Transforming Conflict Items was .79, and on Masquerading Conflict Items .72.

2.3) Procedure

Permission from the author of the scale used for the purpose of data collection was acquired. The permission was also taken from the

respective banks from where the data was to be collected. Before administering ROCI-III, a formal consent was sought from individuals as well as from their respective organizations to ensure them that the information they give would be kept confidential and wouldn't be used for any other purpose other than this study. The participants were ensured that they had a right to withdraw from the study at any stage. The instructions were given about the inventory as well as how to respond to them. The inventory took 8 to 10 minutes to be responded completely. After collecting the data from one bank, the researcher expressed thanks to the participants and left the bank. The data from other bank managers was also collected in the same way and total pool of 300 participants responded to the inventory.

3) RESULTS AND DISCUSSION

3.1) Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) of the 24 items of the ROCI-III was performed with structural Equation Modeling using AMOS. In a model, where there are 4 latent factors including substantive, affective, transforming, and masquerading were allowed to correlate with one another manifested by 24 observed factors with their error variances, they were allowed to load on only its associated factor that was identified by the theory.

Before undergoing an analysis, a CFA model should be made identified by introducing constrains to either on the variances of the latent variable or making one of its observed factor loadings to one. This procedure is necessary because the scale of measurement for the latent variables is unknown and therefore the information provided to the model is limited that makes the model under identified. After doing this, Path analysis using AMOS was used to estimate Model fit presented in table 1.

Table 1: Goodness-of-Fit Indicators of Model for Rahim Organizational Conflict Inventory–III (N=300).

Model	χ^2	df	p	χ^2/df	CFI	TLI	RMSEA (95%CI)
Model A	740.95	246	.000	3.01	.78	.79	.08
Model B	560.23	238	.000	2.36	.90	.89	.06

Note: Model A= with all the parameters added, Model B= with covariance added (e1↔e3, e1↔e6, e5↔e10, e1↔e8, e13↔e18, e20↔e24), CFI=Comparative Fit Index, TLI=Tuker-Lewis Index, RMESEA= Root Mean Square Error of Approximation, *CI=Confidence Interval*.

As shown in table 1Chi-square (χ^2=740.95, p=.000) for the model A was significant, suggesting an unsatisfactory fit. However, the χ2 test is accepted to be problematical because it is sensitive to sample size, (Brown 2006), especially if the observations are greater than 200. Thus, the researcher reported an alternate evaluation to the χ2 statistics i.e. the ratio of χ2 to degree of freedom, which appears as CMIN/df (Joreskog, 1993) is 3.02 (≤ 3), (Kline, 2011). Besides chi-square goodness of fit test, GFI directly assesses the observed variances of the model (Gerbing & Anderson, 1993). Whereas , another index of goodness of fit of a proposed model relative to that of the initial model is the relative non centrality index (CFI/TLI). It is independent of sample size (Bentler, 1990), and Gerbing and Anderson (1993) acclaimed this as the preeminent existing index of fit for SEM models. Hu and Bentler (1999) suggested that when RMSEA values are close to .06 or below and CFI and TLI are<_.90 then the model may have a reasonably good fit. Therefore, it is recommended to report not only χ2 but RMSEA and CFI/TLI also. The various fit indices (CFI= .78, TLI= .79, RMSEA= .08)for the initial model (Model A) suggest poor fit of the model, so the model (Model A) needs to be modified somehow for making this model well fitted for the data.

For making the model to be significant, AMOS provides specific modification indices for the fixed (observed variables) and constrained (covariances) parameters. Generally, correlations between error terms with observed or latent variables, or with other error terms that are not part of the same factor were not advisable. Thus, the most appropriate modification available is to covary error terms that are part of the same factor or the errors that provides some theoretical evidences (Kenny, 2011). So the modified model (Model B) was run with added correlations between the error variances so, they were allowed to be freely estimated. As the RMSEA had been declined to .06 which is small enough to indicate

a good fit and the other various fit indices for the final Model (Model B) were CMIN/df = 2.36 (≤ 3), CFI= .90, TLI= .89)provide a comprehensive indication of excellent fit of the data with the tested model (Model B). The paths drawn in the Model B were shown in (Figure 2).
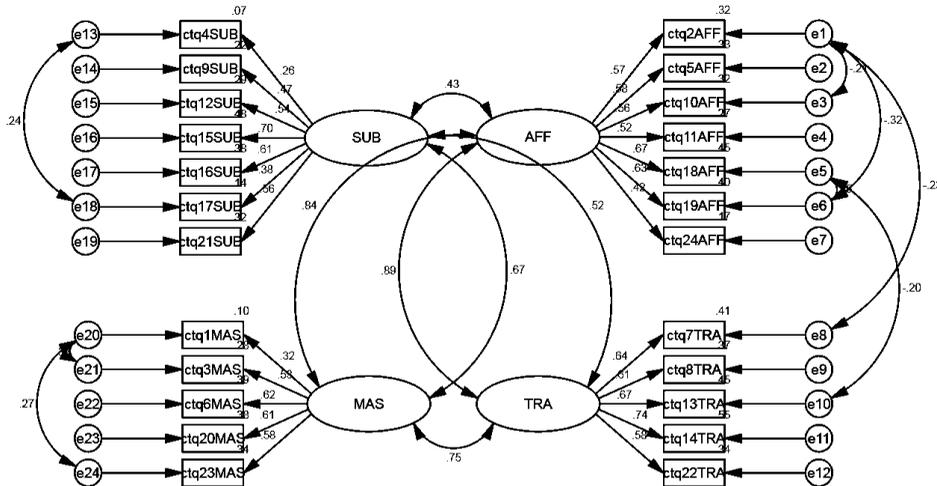

Figure 2: Complex Confirmatory Factor Analysis Model for Rahim Organizational Conflict Inventory–III representing Standardized Regression Coefficients and Variances in Sample (N=300).

Note: The CFA model displays the factor loadings (standardized regression weights) for the common factor (SUB=Substantive, AFF=Affective, MAS=Masquerading, TRA=Transforming) and each of the observed variables. Moreover, squared multiple correlation coefficients (R^2), describing the amount of variance that the latent variables accounts for in the observed variables are also displayed.

Figure 2 shows the final model (Model B) with all the significant paths as indicated by the factor structure of Rahim Organizational Conflict Inventory-III (Rahim, 2009). The factor leadings and explained variances were showed in table 2.

Table 2: Standardized factor Loadings and Variance for the 4-Factor Confirmatory Model of Rahim Organizational Conflict Inventory–III (N=300).

Item No.	Standardized factor loadings	R^2
AffectiveConflict(a = .76)		
2	.57	.32
5	.58	.33
10	.56	.32
11	.52	.30
18	.67	.45
19	.63	.40
24	.41	.20
SubstantiveConflict(a = .71)		
21	.56	.32
17	.40	.14
16	.61	.40
15	.69	.48
12	.53	.30
9	.47	.23
4	.25	.10
Masquerading Conflict(a = .72)		
23	.58	.34
20	.62	.38
6	.62	.40
3	.53	.30
1	.32	.10
TransformingConflict(a = .79)		
7	.64	.41
8	.61	.37
13	.67	.45
14	.74	.55
22	.60	.34

Note: Cronbach's alpha is reported in parenthesis for the whole sample (N=300).

The above table shows the standardized factor loadings that represents the correlation between each observed variable and the corresponding factor. The factor loadings of the entire observed variable with its corresponding factors ranges from 0.74-0.32 confirming a four factor model of the inventory (Tabachnick & Fidell, 2007), with the exception of 0.25 factor loading of item 4 of Substantive factor but that factor was not constrained to zero because by doing this the value of χ2 cannot be computed and also it is not advisable because the theory provides a

theoretical evidence of that factor structure of Rahim Organizational Conflict Inventory-III, (Rahim, 2011).

Moreover, the table also shows the variance, (R^2) as a standardized factor loading squared that means the extent that a factor can explain the variance in a manifest variable. A good deal of the variance in each observed variable is accounted for common factors. Furthermore, Nunnally and Bernstein (1994) suggested that the reliability values of the scale were within the desirable range.

3) CONCLUSION

This study is the first attempt to confirm the 4-factor structure of The Rahim Organizational Conflict Inventory-III, ROCI-III, (Rahim, 2009).The factor structure presented interpersonal organizational conflict as a combination of substantive, affective, masquerading and transforming conflict and the findings of the study provide support that the factor structure of the organizational conflict seems to be well represented.

In future studies, the factor structure in the present study should be replicated with data from other samples. This will provide further support for the factor structure of the subscales. Future work should also be devoted to the psychometric properties such as predictive and discriminant validity and sensitivity to change should be studied longitudinally. Besides these limitations, now there is a questionnaire available that tapes the relevant domains of organizational conflict that may be further used in research and organizational setup for assessing and then provides better management of these types of conflict. Finally the study confirmed the 24 item four-factor structure of the inventory as it is a short questionnaire resulting in a time and cost effective useful measure of the interpersonal organizational conflict.

REFERENCES

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin.* [Online] PubMed Database 107(2). p. 238-246. Available from: http://www.ncbi.nlm.nih.gov/pubmed. [Accessed: 2nd Feb 2015].

Bentler, P. M., & Bonett, D. G. (1980).Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin,* [Online] PsycNet*88*, p.588-606.*http://psycnet.apa.org/psycinfo.* [Accessed: 2nd Feb 2015].

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*.p. 238-246.

Brown, T. A. (2006). *Confirmatory Factor Analysis for Applied Research*. New York: Guilford.

Gainous, J. (2008). Who's ambivalent and who's not? Ideology and ambivalence about social welfare, *American Politics Research.39* .p. 210-235.

Gerbing, D. W., & Anderson, J. C. (1993).Monte Carlo evaluations of goodness-of-fit indices for structural equation models. In K. A. Bollen & J. S. Long (eds.), *Testing Structural Equation Models.* Newbury Park, CA: Sage.

Harrington, D. (2009). *Confirmatory Factor Analysis*. [Online] USA. Oxford University Press. Available from: https://books.google.com.pk/books. [Accessed : 6th Feb 2015].

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

Jehn, K. 1997. A qualitative analysis of conflict types and dimensions in organizational groups. *Administrative Science Quarterly. 42*. p. 530-557.

Jöreskog, K. G. (1993). Testing structural equation models. In Bollen, A. K., & Long, S. J (eds.). *Testing Structural Equation Models*. Newbury Park, CA: Sage.

Kenny, A. D. (2011). *Respecification of Latent Variable Models.* [Online] Available from http://davidakenny.net/cm/respec.htm. [Accessed: 30th Dec 2014

Kline, R. B. (2005). *Principles and practice of structural equation modeling.* 2nd ed. New York: Guilford.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory*. New York: McGraw Hill. Available from: https://books.google.com.pk/books. [Accessed: 2ᵗʰFeb, 2015].

Rahim, M. A. (2011). *Managing Conflict in Organization* [Online] New Jersey. Transaction Publishers. Available from: https://books.google.com.pk/books. [Accessed: 30ᵗʰ December 2014].

Rahim, M. A. (2002). Toward a theory of managing organizational conflict, *International Journal of Conflict Management. 13*(3). p.206 - 235

Rahim, M. A., &Magner, R. N. (1995). Confirmatory factor analysis of the styles of handling interpersonal conflict: First-order factor model and its invariance across groups. *Journal of Applied Psychology*.80(1). p. 122-132.

Pelled, L. H., Eisenhardt, K. M., & Xin, K. R. (1999).Exploring the black box: An analysis of work group diversity, conflict, and performance. *Administrative Science Quarterly.44*. p.1–28.

Tabachnick, B. G., & Fidell, L. S. (2007).*Using Multivariate Statistics*. 5ᵗʰ ed. Boston, MA: Allyn & Bacon