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## A PATH-ANALYTIC STUDY OF THE CONSEQUENCES OF ROLE CONFLICT AND AMBIGUITY

**ARTHUR G. BEDEIAN**  
**ACHILLES A. ARMENAKIS**  
Auburn University

Since the initial pioneering work of Jacobson, Charters, and Lieberman (1951) on the use of the role concept in the study of complex organizations, there has been a growing literature exploring the relationship between role perceptions and work-related attitudes and behavior. In particular, considerable attention has been focused on the negative outcome of such role-related phenomena as role conflict and ambiguity. For example, both role conflict and ambiguity have been associated with job dissatisfaction, job-induced tension, lower organizational commitment, and propensity to leave an organization. Van Sell, Brief, and Schuler (1977) give a

review of these relationships. Although such dysfunctional outcomes have been extensively documented, few attempts have been made to place the role metaphor into a multivariate context for the purpose of making causal inferences.

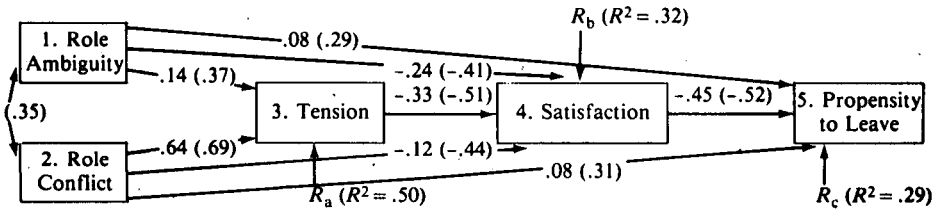
As recently as 1977, only three causal correlational analyses of the consequences of role conflict and ambiguity on various work-related outcomes had been attempted. Of these, two employed cross-lagged correlations (Miles, 1975; Szilagyi, 1977) and the third, path analysis (Oliver & Brief, 1977-78). Given the different purposes and different assumptions of these entirely different techniques (Billings & Wroten, 1978), the results of these three studies can hardly be considered interchangeable and certainly not conclusive. Indeed, with respect to the Miles (1975) and Szilagyi (1977) studies, Billings and Wroten have argued that despite statements to the otherwise (Feldman, 1975; Young, 1977), cross-lagged correlations are *not* appropriate "for testing causal inferences, but are only suited for testing the null hypothesis that the observed correlation between two variables is spurious. That is, that two variables are correlated only because each is related to a third variable, which may be unknown to the researcher and unmeasured" (1978, p. 679). This realization limits the current fund of knowledge dealing with the relationships between role conflict and ambiguity and various work-related outcomes when it is recognized that the one remaining study (Oliver & Brief, 1977-78) on which one must rely for such understanding leaves one question unaddressed. Oliver and Brief (1977-78) employed path analysis to investigate the consequences of role conflict and ambiguity, but they did not attempt to test whether the path coefficients they reported were consistent with the observed correlations between the variables analyzed. Without this verification, the network of causal relationships presented cannot be assured (Billings & Wroten, 1978).

Given the state of existing cross correlation/path analytic studies dealing with role-related phenomena, it would seem that an understanding of the interrelationships existing among role variables is lacking. To address this circumstance, the purpose of this study was to reinvestigate the consequences of role conflict and ambiguity on tension, job satisfaction, and propensity to leave an organization through the use of path analysis. Unlike cross-lagged correlation, path analysis is acknowledged as an especially appropriate and useful "technique for testing the consequences of proposed causal relationships among a set of variables" (Billings & Wroten, 1978, p. 677).

### Theoretical Model

An essential aspect of path analysis is the construction of a hypothesized model of reality based on the state of current theory in the particular area being investigated. Given this theoretical base, the model is written as a set of cause-effect relationships. Figure 1 represents the hypothesized

FIGURE 1  
Path Diagram of Hypothesized Model<sup>a</sup>



<sup>a</sup>Numbers in parentheses indicate zero-order correlations. Other numbers are path coefficients.

theoretical model of the current study. Two exogenous variables (1 and 2) are present in this model, and they are assumed to be independent of each other. The remaining three variables are defined as endogenous. Causality is presumed to flow in the direction of unidirectional arrows. Thus, the model in Figure 1 proposes that experienced role conflict and ambiguity have a direct and positive impact on both job-related tension and propensity to leave an organization, and a direct and negative effect on job satisfaction. In addition, satisfaction is hypothesized as directly affecting propensity to leave, and experienced tension is shown as indirectly affecting potential turnover through its effect on experienced satisfaction.

The model in Figure 1 is consistent with past research and theory. A review of the role literature (Van Sell et al., 1977) suggests that job-related tension is a direct function of role conflict (direct conflicts in which role obligations must be reconciled) and role ambiguity (lack of role clarity). Thus, according to the role literature, conflict and ambiguity should increase the probability that individuals will experience job-induced tension (Beehr & Newman, 1978). Such tension is seen as reflecting the extent to which an individual experiences psychological anxiety as a consequence of role-related matters. In turn, it has been generally argued that the occurrence of tension in the performance of job duties results in decreased job satisfaction and, consequently, an increase in the perceived desirability of leaving an organization (Brief & Aldag, 1976; Johnson & Graen, 1973). Whether these assumed cause-effect relationships are valid, however, has yet to be satisfactorily explicated.

Whatever the case may be, the results of the proposed path analysis will permit an evaluation of the consequences of the causal inferences advanced by assessing the focal relationships within a multivariate causal context. In doing so, it should provide increased confidence in understanding the outcomes of work-related role perceptions.

## Method

**Setting**—The study was conducted in a Veterans Administration Medical Center of 1,100 beds. An estimated 60 percent of the center's work load was devoted to the care of mental patients (both acute and long

term), with the balance of its activities devoted to acute and long term medical and surgical patients. The center is divided into 6 services and 24 wards. At the time of the study there were approximately 980 inpatients and 6,000 outpatients on the rolls.

*Sample*—The survey population was comprised of 460 staff at 5 levels in the center's nursing service, from whom 202 usable questionnaires were obtained and analyzed. The distribution of respondents included 93 nursing assistants, 36 licensed practical nurses, 56 registered nurses, 8 nurse practitioners, and 9 nurse administrators (department heads and program coordinators). All subjects except nursing assistants and licensed practical nurses were RNs. The sample included a representative cross-section of employees from all levels of the nursing hierarchy and from all departments. Of the sample, 115 (57 percent) were females. The average age was 39 and average length of service was 14 years.

*Instruments*—Role conflict and role ambiguity were measured by using six and eight items, respectively, from the scales developed by Rizzo, House, and Lirtzman (1970). Each scale was scored using a 5-point response mode ranging from "very false" to "very true," and by averaging across the relevant items. Both role conflict and role ambiguity (reversed) were scored so that the greater the score, the greater the perceived stress. These scales were chosen because of their established psychometric properties (Schuler, Aldag, & Brief, 1977) and wide usage in role theory research. A factor analysis for the present sample confirmed the unidimensional structure of both scales.

Tension was measured by a 9-item index taken from Lyons (1971). Developed from a longer list used by Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964), this scale was specifically constructed to determine the frequency with which respondents report feeling bothered by a variety of work related factors. Response categories (coded from 1 to 5) were "never," "rarely," "sometimes," "rather often," and "nearly all the time." Items were averaged to yield a single tension score. A factor analysis of the 9-item index confirmed its unidimensionality as described by Lyons (1971).

Propensity to leave was gauged with a 3-item instrument developed by Lyons (1971) for use with nursing personnel. Response alternatives to each item were coded from 1 to 5 and averaged so that the greater the score, the greater the propensity to leave.

Satisfaction was assessed by a 6-item index taken from the scales developed by Taylor and Bowers (1972). Designed to be a "descriptive" measure, the index asks respondents for their perceptions of stated organizational practices and conditions. Response alternatives range from "to a very little extent" (the least favorable response, scored 1) to "to a very great extent" (the most favorable response, scored 5) and are averaged to yield a single score. This index was selected for use because of its simplicity in administration, its wide use in a diversity of settings, and its established validity and reliability (Franklin, 1975).

**TABLE 1**  
**Descriptive Statistics and Correlations for Study Variables<sup>a</sup>**  
**(N = 202)**

Variable	Reliability	M	SD	r					
				1	2	3	4	5	
1. Role ambiguity	.79	2.02	.60	—					
2. Role conflict	.89	2.66	.78	.35	—				
3. Tension	.86	2.58	.76	.37	.69	—			
4. Job satisfaction	.83	2.21	.94	-.41	-.44	-.51	—		
5. Propensity to leave	.76	3.76	.81	.29	.31	.39	-.52	—	

<sup>a</sup>Correlations in this table  $\geq .29$  are significant at the .001 level.

## Results

Table 1 presents the mean score, standard deviation, and coefficient alpha internal reliability estimates for each measure. Also shown are the intercorrelations among all the variables in the study. The correlation matrix indicates that role ambiguity and role conflict both are significantly related to all hypothesized consequences in the anticipated direction. Other correlations in the matrix are clearly meaningful within the conceptual framework of the study and provide support for the suggested linkages between the consequences of role ambiguity and role conflict when viewed as simple associations.

Figure 1 contains the results of the path analysis of the hypothesized model. It can be seen that the magnitude of the path coefficients strongly reinforces the a priori construction of the model. Satisfaction has a substantial, negative, direct effect on propensity to leave as predicted. This direct effect is a general indication of the importance of job dissatisfaction as a predictor of perceived desirability of leaving an organization after taking into account all other independent variables contained in the model. Stated differently, 45 percent of the standard deviation of propensity to leave is directly attributed to the unmediated effect of satisfaction. In contrast, although role conflict and role ambiguity both display significant zero-order correlations with propensity to leave, their direct effects on the latter appear negligible after accounting for the variation attributable to satisfaction. The high correlations between both role ambiguity and conflict and propensity to leave therefore can be interpreted as an artifact of the latter's shared high correlation with satisfaction.

Of the three predictors of satisfaction included in the hypothesized model, tension had the greatest impact. This thus suggests that although role ambiguity and conflict are both negatively related to satisfaction, the strength of the relationship lies through the path of the intervening variable (tension), rather than through a direct relationship.

Finally, role ambiguity and conflict show the predicted, positive effects on tension. Note, however, that the path coefficient representing the causal relationship between role conflict and tension is much larger than

the similar coefficient between role ambiguity and tension. This suggests that, given the high correlation between role ambiguity and role conflict, role ambiguity is suppressing a greater portion of the variance in role conflict uncorrelated with satisfaction than vice versa.

In order to test the accuracy of the fit of the hypothesized model to the observed data, reconstruction of the original zero-order correlation matrix from the estimated parameters was attempted. Unless these reconstructed correlations can be shown to be consistent with the observed correlations, the computed path coefficients may completely misrepresent the causal relationships being investigated and should not be accepted. As Billings and Wroten state: "If a correlation cannot be reproduced, then something is amiss. A path was deleted when it should have been retained, residuals are correlated, or the ordering of variables is incorrect" (1978, p. 684).

The predicted correlations were computed following the procedure outlined by Kerlinger and Pedhazur (1973) for the decomposition of correlations into direct and indirect effects. The hypothetical model represented by Figure 1 was found to reproduce almost perfectly the observed zero-order correlations, the one discrepancy ( $r_{35} = .34$  vs.  $\hat{r}_{35} = .39$ ) being within the range of acceptability normally suggested (Kerlinger & Pedhazur, 1973). Thus, it can be safely concluded that the proposed model includes only significant coefficients, excludes no significant coefficients, and fits the observed data (Griffin, 1977).

Having determined that the proposed model in Figure 1 constitutes an accurate representation of the role scheme, given the stated causal assumptions, the model's "strength of causality" or "goodness" should also be evaluated. This involves assessing both the overall adequacy of explanation of the specified (restricted) model and the adequacy of the various independent variables in explaining each of the model's three endogenous variables. With respect to the latter, the adequacy of the independent variables is judged, in a predictive sense, by the  $R^2$  terms (the proportion of explained variance) associated with each endogenous variable. As indicated in Figure 1, the interactions of the independent variables contained in the model explain 50, 32, and 29 percent of the variance in tension, satisfaction, and propensity to leave, respectively. Other things being equal, a low  $R^2$  is considered less desirable than a large  $R^2$  (Griffin, 1977).

The overall adequacy of the specified (restricted) model was evaluated using Kim and Kohout's (1975) large sample chi-square test ( $L$ ), a generalization of Land's (1973) likelihood-ratio test statistic. This statistic is used to determine if the regression estimates under the general (full) model are the same as the estimates under the restricted model. In the present case,  $L = .77$ ,  $df = 1$ ,  $p > .75$ . This indicates that variance explained by the restricted model does not significantly differ from that explained by the full or general model, thus supporting the overall adequacy of the specified model.

At this point it should be noted that the final test of the adequacy of explanation of a model is the soundness of the theoretical rationale on which

it is based. That rationale, together with a thorough critical examination of path coefficients, is the only "true" basis on which one model can be accepted as being more accurate than another (Miller, 1977).

### Discussion and Summary

The present results clearly confirm the importance of role perceptions in understanding job-related attitudes. As predicted, role conflict and ambiguity were both associated with high levels of job-induced tension. In addition, the findings also showed that although both role conflict and ambiguity are also directly related to low levels of job satisfaction, they appear to have an even greater indirect effect on satisfaction through their effect on tension. Thus, the role variables investigated in this study achieve an even greater importance as they appear to have both direct and indirect effects on job attitudes.

The findings also reaffirm the importance of job satisfaction on the perceived desirability of leaving or staying in an organization. The observed impact of job dissatisfaction on propensity to leave carries a rather straightforward implication. The data suggest that organizations can favorably reduce attrition by assuring positive sources of job satisfaction.

Based on these findings, two conclusions are evident. First, by assuring that each role occupant has the necessary information to perform his or her job adequately and that the expectations received by a role occupant do not require incompatible behavior in the same job, an organization can clearly reduce the negative consequences associated with the role demands investigated in this study. Second, the findings of this study suggest the importance of investigating the impact of additional factors on role pressures. For example, research is available that suggests that personal characteristics may affect the relationship between perceived role expectations and employee behavior. Indeed, House argues that "evidence that a result does not generalize across major demographic groups suggests that there are important individual (physiological or psychological) or social environmental variables mediating the relationships in question" (1974, p. 24). As Beehr and Newman (1978) report, however, the number of studies reporting such effects is modest.

In sum, while achieving its primary purpose of evaluating the consequences of role conflict and ambiguity within a multivariate causal context, the results of the present study also serve the secondary purpose of underscoring the need for future investigations into the impact of additional factors (e.g., individual characteristics, differences in contexts, tasks, work-settings, and personal controls) on role perceptions. The increased knowledge resulting from the incorporation of such variables in future research will greatly enhance the understanding of role theory and, hence, knowledge of human behavior in organizations.

As with all similar research, the inferences drawn from this study must be tempered by the self-report and cross-sectional characteristics of the

data. It thus should be recognized that the data analyzed represent individual perceptions and attitudes that may differ from "objective reality."

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